Technical Reports

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Contents

Chemicals and Allied Products 159
Drugs and Pharmaceuticals; Dyes..... 159
Agricultural Chemicals; Plastics..... 160
Paints, Varnishes and Lacquers..... 161
Inorganic Chemicals..... 163
Miscellaneous Chemicals..... 163
Electrical Machinery..... 165
Communication Equipment; Electronics..... 166
Miscellaneous..... 167
Fuels and Lubricants..... 169
Highways and Bridges..... 169
Instruments..... 169
Leather and Leather Products..... 173
Machinery..... 173
Medical Research and Practice..... 174
Metals and Metal Products..... 176
Meteorology and Climatology..... 178
Minerals and Mineral Products..... 179
Ordnance and Accessories..... 182
Paper and Allied Products..... 183
Personnel Aptitude Testing..... 183
Photographic and Optical Goods..... 183
Physics..... 184
Physiology..... 186
Printing, Publishing, & Allied Industries..... 186
Psychology..... 187
Rubber and Rubber Products..... 187
Structural Engineering..... 188
Transportation Equipment..... 188
Aeronautics..... 188
Water Supply, Sanitation & Public Health..... 190
Miscellaneous..... 200
Patents..... 200
Chemicals and Allied Products..... 200
Electrical Machinery..... 201
Lumber and Wood Products..... 201
Machinery..... 202
Metals and Metal Products..... 202
Miscellaneous..... 202
Recent Accessions..... 203

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BIBLIOGRAPHY OF Technical Reports

April 1950

CHEMICAL AND ALLIED PRODUCTS

Drugs and Pharmaceuticals

ACETYL-BENZYLAMIN. MARFANIL. I. G. Farbenindustrie A. G., Elberfeld, Ger. Aug 1942 - Mar 1944. 10p (Text in German) Mi $1.25, Ph $1.25. PB 99334
1. Benzylamine, Acetyl - Preparation - Germany 2. Benzylamine - Derivatives - Therapeutic use - Germany 3. Marfanil (Trade name) 4. Micro BIOS/DOCS/3443 5. Micro BIOS FD 1395/49, Frames 1-10.
Abstract available as PB 99334s. 1p. Mi $1.25, Ph $1.25.

Dyes

IDENTIFICATION OF ORGANIC DYESTUFFS BY X-RAY POWDER DIFFRACTION, by George V. Susich. U. S. Office of the Quartermaster General. Military Planning Div. Research and Development Branch. Jun 1949. 18p photos Mi $1.75, Ph $2.50, Mimeo: $.50. PB 99530
The investigations described were carried out at the former I. G. Farbenindustrie plant at Ludwigshafen, Rh., where the x-ray technique was used with great effectiveness for the identification of competitive dyes and also for controlling the dyestuff products made there. Bibliography and figures attached. See also, BIOS Final Report no. 987, Item 22, pp. 165-170. PB 75860, microfilm $4.00 photostat $13.00, and FIAT Final Report no. 1313, PB 85173, pp. 434-463. Vol. III. Dyestuff Research. Price mimeograph $5.00. QMC TSR 58.

PRODUCTION SCHEDULE, DYESTUFFS DEPT., ALIZARINE SUBDIVISION. INFORMATION BY ITEMS PRODUCED: BLAUSULFOCHLORIDE, BLAUTHIOSÄURE. I.G. Farbenindustrie A. G., Hoechst, Ger. n.d. 5f (Text in English) Mi $1.25, Enl Pr $2.50. PB 96615
1. Dyes, Alizarin blue - Intermediates - Germany 2. Thio compounds - Production - Germany 3. Sulfochlorides - Production - Germany 4. Micro BIOS/DOCS/2351/1673/2 5. Micro BIOS FD 1935/47, Frames 1-5.

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VERZEICHNIS DER AUSGELAUSCHEN ÜBER ARBEITEN AUF DEN ZWISCHENPRODUKTEGEBEITEN AUSTAUSCHE VON MAI 1940 UND 1944 (REPORTS ON CHEMISTRY AND DYESTUFF RESEARCH READ AT THE 1940 AND 1944 ZETKO CONFERENCE). I. G. Farbenindustrie A. G., Leverkusen, Ger. 1940-1944. 87f (Text in German) Mi $3.75, Enl Pr $12.50. PB 96587
1. Chemical research - Germany 2. Dyes and dyeing - Research - Germany 3. ZETKO (Zwischenprodukt-Kommission) 4. Micro BIOS FD 4080/47, Frames 1-87. Abstract in English.

Agricultural Chemicals

AETHELYNOXID, AETHYLYNCHLORID. (ETHYLENE OXIDE, ETHYLENE CHLORIDE). I. G. Farbenindustrie A. G., Gendorf, Ger. n.d. 9f drawings only Mi $1.25, Enl Pr $2.50. PB 96621
1. Ethane, Dichloro - Germany 2. Ethylene oxide - Germany 3. Micro BIOS DOC/2526/1840/1 4. Micro BIOS FD 3152/47, Frames 1-2.

ÄTHULENOXIDE VON AMMENDORF. (ETHYLENE OXIDE PLANT: CORRESPONDENCE AND NOTES). I. G. Farbenindustrie A. G., Schkopau, Ger. 1938-1944. 166f drawings (Text in German) Mi $6.25, Enl Pr $22.50. PB 96593
1. Ethylene oxide - Production - Germany 2. I. G. Farbenindustrie A. G., Ammendorf, Ger. 3. Micro BIOS FD 2621/47, Frames 1-165.
Abstract in English. See also PB 96590.

ATHYLENOXYD - DESTILLATION. (ETHYLENE OXIDE PLANT: CORRESPONDENCE AND NOTES). I. G. Farbenindustrie A. G., Schkopau, Ger. 1939-1944. 189f drawings (Text in German) Mi $6.75, Enl Pr $25.00. PB 96590
1. Ethyl oxide - Production - Germany 2. Micro BIOS FD 2622/47, Frames 1-188.
Abstract in English. See also PB 96593.

MODE OF ACTION OF ORGANIC INSECTICIDES, by Robert L. Metcalf. U. S. National Research Council. Chemical-Biological Coordination Center. 1948. 85p tables Mi $3.75, Ph $11.25. Available from National Research Council, 2101 Constitution Ave., Washington, D. C. $1.00. PB 99882
A thorough review of the diversity, preparation, physiology, toxicology, biochemistry, and theoretical considerations in the use of present day organic insecticides. Extensive bibliography is also included. The insecticides are covered in nine groups.

Plastics and Plasticizers

ACRYLATE (HC-202 "BOILABLE" LUCITE): TENSILE STRENGTH AT ELEVATED TEMPERATURE, by Robert F. Wichser. Republic Aviation Corp., Farmingdale, L. I., N. Y. Sep 1947. 8p photos, graphs, drawings Mi $1.25, Ph $1.25. PB 99789
Tensile tests were conducted on 12 tensile specimens and on 12 wire mesh joints made from Boilable Lucite. The tensile specimens and joints were tested at various temperatures after having been soaked for 24 hours in an oven at the test temperature. After removal from the oven a thermocouple was taped to the center of the specimens and the temperature maintained during test with heating lamps. The test machine crosshead speed rate of loading was .2 to .25 inches/minute. The results of all tests are tabulated.

PLASTICIZER "SCHKO 3" FOR IGELIT PCU (P.V.C.). I. G. Farbenindustrie A. G., Schkopau, Ger. 1942-1943. 23f (Text in German) Mi $2.00, Enl Pr $5.00.
PB 99810

1. Schko 3 (Plasticizer) 2. Plasticizers - Production - Germany 3. Igelit PCU (Trade name) 4. Micro BIOS FD 2392/47, Frames 1-22.
Abstract in English.

UNIFIED THEORY OF PLASTIC BUCKLING OF COLUMNS AND PLATES, by Elbridge Z. Stowell. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 1948. 15p graph, table Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 99876

For uniform compression, the theory shows that long columns which bend without appreciable twisting require the tangent modulus and that long flanges which twist without appreciable bending require the secant modulus. Structures that both bend and twist when they buckle require a modulus which is a combination of the secant modulus and tangent modulus. NACA 898.

Paints, Varnishes and Lacquers

DEVELOPMENT OF AN AIR-DRY SILICONE VARNISH OR LACQUER. Centro Research Laboratory, Inc., Briar Cliff Manor, N. Y. Feb 1948. 12p Mi $1.75, Ph $2.50. PB 99778

The progress made in the development of an air-dry silicone varnish or lacquer is summarized. The film was of medium hardness, good flexibility, fair adhesion, fair dielectric strength, and acceptable water vapor diffusion constants. Formulations of the ethyl cellulose and acrylic blends may be improved by either increasing the content of these ingredients to overcome the softness of the final film or by adding a hard lacquer type resin in quantities sufficient to impart desired hardness to the resultant film. A summary of the results with other varnishes and recommendations for future study are included. Laboratory report no. 9. Contract W-33-038 ac 16018 (17083).

EVALUATION OF ULTRA-VIOLET LIGHT CATALYST METHYL METHACRYLATE PRE-POLYMER ADHESIVES APPLICABLE TO B-45A AIRPLANES (N.A.A. MODEL NA-147) by R. H. Wight. North American Aviation, Inc. Engineering Research Laboratory, Los Angeles, Calif. Jan 1948. 41p photos, graphs, tables Mi $2.50, Ph $6.25. PB 99784

The preparation and use of photo-catalyst partially polymerized methyl methacrylate monomer as an adhesive for joining acrylic plastic sheet and for bonding nylon fabric to acrylic sheet, are discussed. Data are presented to show progressive cure of joints effected by ultraviolet irradiation, tensile strength of cemented acrylic sheet, shear strengths of bonds between nylon fabric and acrylic sheet, the effect of artificial weathering upon the joint strengths of cemented acrylic sheet and nylon fabric bonded to acrylic sheet, creep tendencies of nylon to acrylic bonds, and the effect of the adhesives upon the tensile strengths of nylon fabric and acrylic plastic. Report no. NA-48-67.

FUEL RESISTANT COATING, TEST 13-9603-0082. MODEL XF-11. REPORT NO. 01-212-M, by George O. Shull. Hughes Tool Co., Culver City, Calif. Oct 1947. 5p Mi $1.25, Ph $1.25. PB 99781

A clear protective coating made with a basis of nylon, which could be applied over

the existing finish, was believed to be the most suitable type of coating. A nylon lacquer was developed, composed of #6A nylon (FM 6501), isopropanol, cyclohexanol, and methanol.

GERMAN PAINT INDUSTRY. I. G. Farbenindustrie A. G., Leverkusen, Ger. 1940-1944. 130f photos, graphs, tables (Text in German and English) Mi $5.00, Enl Pr $17.50. PB 99911

1. Paint industry - Germany 2. Varnish industry - Germany 3. Urethane oil - Germany 4. Lead cyanamide - Germany 5. Höppler viscosimeter 6. Petzholdt kreisel-Mischer 7. Micro BIOS FD 525/47.

See also BIOS FR 628 (PB 66130). Abstract available as PB 99911s. 4p. Mi $1.25, Ph $1.25.

INVESTIGATION OF SEALING COMPOUNDS FOR HOT AIR ANTI-ICING SYSTEMS, BY N. KLIMMEK. NORTH AMERICAN AVIATION, INC. ENGINEERING DEPT., LOS ANGELES, CALIF. REPORT NO. NA 47-794. Aug 1947. 7p photo Mi $1.25, Ph $1.25. PB 99782

Tests were conducted to determine a satisfactory high temperature (350°F max.) sealing compound for sealing heated wind de-icing duct seams on F-82 twin-fuselage fighters. Complete results of tests are summarized in tabular form.

PARAFFIN WAX SYNTHESIS WITH FE CATALYSTS, WATER GAS CYCLE, FRACTIONATING OF FE CYCLE BENZINE, SYNTHESIS WITH COBALT CATALYST ETC. Ruhrchemie A. G., Oberhausen-Holten, Ger. 1938-1943. 57f graphs, tables (Text in German) Mi $2.75, Enl Pr $8.75. PB 99928

1. Waxes - Synthesis - Germany 2. Paraffin wax - Synthesis - Germany 3. Paraffins - Synthesis - Germany 4. Iron - Catalyst - Germany 5. Micro BIOS FD 78/48, Frames 1-57.

Abstract available as PB 99928s. 1p. Mi $1.25, Ph $1.25.

SPECIFICATIONS FOR THE PREPARATION AND APPLICATION OF HIGH TEMPERATURE CERAMIC PAINT NO. CP44, by Dwight G. Bennett. Illinois. University. Dept. of Ceramic Engineering, Urbana, Ill. Jul 1947. 4p Mi $1.25, Ph $1.25. PB 81986

The object of this memorandum report is to present such complete instructions as to enable qualified personnel to reproduce coating CP44 in installations desired. The composition of CP44 together with a description of the materials used in its formulation is presented in Appendix I of this report. The preparation and application of CP44 are described in Appendix II, and the general subject of the development and uses of ceramic paints is considered in Appendix III. Contract W-33-038 ac-14520 (16071). IU DCE MR1.

SPECIFICATIONS FOR THE PREPARATION OF HEAT RESISTANT CERAMIC BASE COATING, NOS. 32-22 AND 115-3, AND THEIR APPLICATION TO SUPERCHARGER TURBINE WHEEL BUCKETS, by Dwight G. Bennett. Illinois. University. Dept. of Ceramic Engineering, Urbana, Ill. Feb 1946. 4p Mi $1.25, Ph $1.25. PB 81896

The purpose of this memorandum report is to present such complete instructions as to enable those skilled in the art to reproduce frits and mill the coatings, apply, and fire them on turbine wheel buckets. Contract W-535 ac-40114 (10464) supplemental agreement no. 3(S-12524). IU DCE MR2.

Inorganic Chemicals

INORGANIC CHEMISTRY, PT. IV, BY WILHELM KLEMM AND OTHERS. U.S. FIELD INFORMATION AGENCY, TECHNICAL. (FIAT REVIEW OF GERMAN SCIENCE 1939-1946). 1948. 264p graphs, tables (Text in German) Mi $9.00, Ph $33.75, Mimeo: $3.00. PB 99204

Title page in English. Table of contents in English, French and German. For pt. 1 see PB 95688, for pt. 2 see PB 85022, for pt. 3 see PB 85038, for pt. 5 see PB 85042.

Miscellaneous Chemicals

ADSORPTION OF THE OXIDES OF NITROGEN BY SOLIDS. SECOND TECHNICAL REPORT COVERING WORK DONE ON CONTRACT N6 ORI 212 TASK II, SUBMITTED by L. H. Reyerson and J. E. Wertz. Minnesota. University, Minneapolis, Minn. Dept. of Chemistry. n.d. 28p graphs, tables Mi $2.00, Ph $3.75. PB 99409

Absorbed layers of NO_2-N_2O_4 on silica were studied. Magnetic susceptibility, vapor pressures and heats of absorption were determined. For first report see PB 98185.

ALUMINA, SILICON CARBIDE COMPOSITIONS, by J. F. McMahon, Richard West, L. I. Shaw. New York State College of Ceramics, Alfred, N. Y. Aug 1947. 12p Mi $1.75, Ph $2.50. PB 81982

The purpose of this report is to give a summation of work completed to date on bodies composed of silicon carbide and alumina. Compositions of alumina and silicon carbide have been investigated, and our results show that a major portion of their strength is retained at elevated temperatures, and after repeated heat shock. Excellent results were obtained with this body in the flame tube heat shock test; see Appendix A of this report. A literature survey has been made covering work done by others on alumina-silicon carbide bodies; see Appendix B. Two tables and two graphs are included. Contract W-33-038 ac 14233. NSCC S1.

CHEMISTRY OF COPOLYMERIZATION, AND INTERIM REPORT OF PROJECT NO. N6-ORI-206 T/O II, INTERIM REPORT #1, SUPPLEMENT A, by Turner Alfrey, Jr., John Bohrer, Charles Lewis. Polytechnic Institute of Brooklyn. Jan 1949. 34p Mi $2.25, Ph $5.00. PB 99399

The work described herein was undertaken to elucidate certain aspects of the theory of copolymerization. The specific problems investigated are described.

EXPERIMENTS TO SUBSTITUTE TECHNICAL HEXANETRIOL FOR TRIGLYCOL AS A LIQUID FOR HEATING BATHS. I. G. Farbenindustrie A. G., Schkopau, Ger. 1943. 5f table Mi $1.25, Enl Pr $2.50. PB 99940

1. Triethylene glycol - Germany 2. Hexanetriol - Germany 3. Micro BIOS FD 2633/47, Frames 1-4.

Includes English abstract. Abstract available as PB 99940s. 1p. Mi $1.25, Ph $1.25.

LITHIUM BROMIDE-METHYL ALCOHOL: A POSSIBLE SYSTEM FOR ABSORPTION REFRIGERATION, by Gordon Leslie Dugger. Sep 1947. 108p photos, diagrs, graphs, tables Mi $4.50, Ph $13.75. PB 99766

Data for specific heats, heats of dilution, vapor pressures, densities, and visco-

sities have been determined for the system lithium bromide-methyl alcohol and are presented graphically. Theory involved in finding each value is discussed and test apparatus is described. Results are calculated for various concentrations. Thesis-University of Florida.

MANUFACTURE OF ALCOHOLS, ESTERS AND ACETATES. Triebstoffwerk Rheinpreussen, Moers, Ger. 1939-1947. 102f diagrs (Text in German) Mi $4.50, Enl Pr $15.00. PB 99930
1. Acetates - Preparation - Germany 2. Alcohols - Preparation - Germany 3. Esters - Preparation - Germany 4. Micro BIOS FD 47/48, Frames 1-100.
Abstract available as PB 99930s. 2p. Mi $1.25, Ph $1.25.

PHEOLOGICAL PROPERTIES OF POLYSTYRENE BELOW 80° C, by Bryce Maxwell and L. F. Rahm. Princeton University. Plastics Laboratory. Sep 1948. 26p photos, graphs Mi $2.00, Ph $3.75. PB 99436
The rheological properties of polystyrene below 80°C have been studied by means of stress relaxation tests at various elongations and temperatures and by creep tests at various loads and temperatures. The results are plotted and conclusions drawn. A new method of measuring crazing is described and detailed studies of the relationship of crazing to time, temperature, stress and strain are reported. PU PL TR 11B.

PRODUCTION OF MONO- AND POLYVINYL CHLORIDE. I. G. Farbenindustrie A.G., Schkopau, Ger. 1938-1945. 611f drawings Mi $9.00, Enl Pr $81.25. PB 99926
1. Vinyl chloride - Production - Germany 2. Polyvinyl chloride - Production - Germany 3. Micro BIOS 2649/47, Frames 1-595.
Abstract available as PB 99926s. 1p. Mi $1.25, Ph $1.25.

PRODUCTION SCHEDULE BY ITEMS PRODUCED; NAPHTHALENE DI ACID FHUMID, DRY AND GROUND (NAPHTALENDISÄSURE F); F-SALT, DRY AND GROUND; 2-NAPHTHOL (BETA-NAPHTOL). I. G. Farbenindustrie A. G., Leverkusen, Ger. n.d. 12f (Text in English) Mi $1.75, Enl Pr $3.75. PB 96623
1. 2,7-Naphthalenedisulfonic acid - Preparation - Germany 2. 2-Naphthol-7-sulfonic acid - Preparation - Germany 3. 2-Naphthol - Production - Germany 4. Naphtalendisäure F (Trade name) 5. F-Saltz (Trade name) 6. Beta-Naphtol (Trade name) 7. Micro BIOS DOCS/2526/1578/36 8. Micro BIOS DOCS/2526/1578/4 9. Micro BIOS DOCS/2526/1578/31 10. Micro BIOS FD 1879/47, Frames 1-11.

STAND DER ARBEITEN AN DER CHLORCYAN-APPARATUR IM CO-BETRIEB. VERFAHREN ZUR KONTINUIERLICHEN HERSTELLUNG VON CHLORCYAN. FABRIKATIONSVORSCHRIFT FÜR DIE HERSTELLUNG VON CHLORHYDRINEN. (STATE OF WORK ON CYANOGEN CHLORIDE APPARATUS IN COBALT OPERATIONS. PROCESS FOR CONTINUOUS PRODUCTION OF CYANOGEN CHLORIDE. MANUFACTURING DIRECTIONS FOR PRODUCTION OF CHLOROHYDRIN). I. G. Farbenindustrie A. G., Leverkusen, Ger. Nov 1942-Jul 1946. 9f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96626
1. Cyanogen chloride - Production - Germany 2. Chlorohydrin - Production - Germany 3. Micro BIOS DOCS/2526/1981/9 4. Micro BIOS DOCS/2526/1981/10 5. Micro BIOS DOCS/2526/1981/24 6. Micro BIOS FD 3153/47, Frames 1-9.

TREATISE ON THE CATALYTIC AROMATISATION OF ALIPHATIC HYDROCARBONS. Kaiser Wilhelm Institut für Kohlenforschung, Mülheim, Ger. 1941. 175p diagrs Mi $6.50, Enl Pr $23.75. PB 99932

1. Hydrocarbons, Aliphatic - Aromatization - Germany 2. Micro BIOS FD 86/48, Frames 1-175.

Abstract available as PB 99932s. 2p. Mi $1.25, Ph $1.25.

ELECTRICAL MACHINERY, EQUIPMENT AND SUPPLIES

Communication Equipment

EVALUATION OF AIRCRAFT INSTRUMENT DISPLAYS FOR USE WITH THE OMNIDIRECTIONAL RADIO RANGE, by A. C. Williams, Jr., and S. N. Roscoe. Illinois. University. Mar 1949. 53p diagrs, drawings, tables Mi $2.75, Ph $7.50. PB 99799

1. Radio range - Performance 2. Radio direction finders (VOR) 3. VOR (Omnidirectional radio range) 4. U. S. Civil Aeronautics Administration 5. CAA 84.

OPTIMUM TRANSFER CHARACTERISTIC OF AN AMPLIFIER FOR AN INDIVIDUAL PULSE, by W. K. Weihe. U. S. Army. Corps of Engineers. Engineer Research and Development Laboratories. Oct 1949. 96p diagrs, graphs Mi $4.25, Ph $12.50. PB 99889

The optimum transfer characteristic of an amplifier for an individual pulse is that transfer characteristic for which the ratio of the peak of the output signal to the root mean square value of the output noise is greater than for any other transfer characteristic. This characteristic is expressed as a function of the Fourier representation of the input pulse. Optimum output voltages for a variety of imput pulses are calculated and optimum networks for some of these pulses are designed. Project 8-23-08-003. ERDL R 1140.

STATISTICAL DESIGN AND ANALYSIS OF WORK ARTICULATION TESTS FOR ESTIMATING THE RELATIVE SPEECH TRANSMISSION EFFICIENCY OF MICROPHONE ASSEMBLIES, by G.F.M. Smith. Canada. Royal Canadian Air Force. Clinical Investigation Unit no. 1. Jul 1944. 28p graph, table Mi $2.00, Ph $3.75. PB 99793

An investigation was made of the relative acoustic efficiency for speech transmission of various microphone assemblies for aircraft use. The results show that a suitable statistical design of word articulation tests, increases the precision of comparisons made between microphone assemblies by estimation of a valid error, separate from uncontrolled but measureable variables. It was also concluded that the estimation of error can be valid only if the uncontrolled variables are introduced into the design in an appropriately random fashion. ACAMR no. 1 CIUB 145.

Electronics

ADMITTANCE DIAGRAMS FOR ANTENNAS AND THE RELATION BETWEEN ANTENNA THEORIES, by Erik Hallen. Harvard University. Cruft Laboratory. Jun 1948. 25p graphs Mi $2.00, Ph $3.75. PB 99948

Investigations on the transmitting and receiving qualities of antennas, with special emphasis placed on antenna current distribution are discussed. Graphs are given for antenna admittances, susceptances, resistances and reactances. Contract N5-ori-76, task order no. I, NR-078-011. Cruft Laboratory technical report no. 46.

ELECTRONIC LANDING AIDS, A REPORT ON THE USE OF THE ILS(SCS-51) AND GCA ELECTRONIC LOW APPROACH SYSTEMS DURING FLIGHT TESTS IN RESTRICTED VISIBILITY. FINAL REPORT NO. 8, JAN 24, 1947 COVERING TESTS FROM JUN-DEC 1946, by L. H. Johnson and V. Gudmundsen. U. S. Landing Aids Experiment Station, Arcata, Calif. Jan 1947. 31p photos, diagr, graph Mi $2.50, Ph $6.25. PB 99955

A detailed discussion is presented on the use of the Instrument Landing System (ILS) and GCA electronic low approach systems during flight tests at restricted visibility. It was concluded that either ILS or GCA may be used as the "backbone" of an integrated landing system for operating aircraft in poor visibility.

ENTWICKLUNG EINES KAPAZITIVEN ABGRIFFS ZUR MESSUNG KLEINER VERSCHIEBUNGEN. (DEVELOPMENT OF A CAPACITIVE PICKOFF FOR MEASURING SMALL DISPLACEMENTS) by W. Schneider. Darmstadt. Technische Hochschule, Institut für Technische Physik. Jul 1944. 23p drawings, graphs, diagrs, table (Text in German and English) Mi $2.00, Ph $3.75. PB 99777

The development of a method for measuring small displacements and distortions of a moving system which employs a "capacitive pickoff' in conjunction with a two stage electronic amplifier is described. A cylindrical condenser serves as the variable in the system and its movable element is suspended by two laminated coil springs. AAF T-2 T/5342.

PHYSICAL OPTICS OF METAL PLATE MEDIA; PART 1. THEORETICAL CONSIDERATIONS, by B. A. Lengyel. U. S. Naval Research Laboratory, Bellevue, D. C. Sep 1949. 42p diagrs, graphs, tables Mi $2.50, Ph $6.25. PB 99860

Reflection and transmission of electromagnetic plane waves at the surface of parallel-plate metal structures has been studied both theoretically and experimentally. This report is the theoretical preparation for the study which deals with apparatus and experimental findings and is confined to rays with polarization parallel to the edges of the plate and a plane of incidence perpendicular to these edges. The theory of Carlson and Heins is extended and made amenable to numerical predictions. Tables and graphs are provided for the coefficients pertaining to an air-metal-plate medium interface. A method is developed for the analysis of reflecting and transmitting properties of slabs, or media of finite depth. NRL R 3534.

PROPERTIES OF LONG ANTENNAS, by Erik Hallèn. Harvard University. Cruft Laboratory. May 1948. 40p graphs Mi $2.25, Ph $5.00. PB 99952

The discussion deals with the study of outgoing current waves radiated from a long antenna. The author illustrates mathematically and graphically the problems involved regarding the extraction of the traveling current waves and mentions that the solution for the infinite antenna must be included in the solution for the finite ones. Contract N5-ori-76, task order no. I, NR-078-011. Cruft Laboratory technical report no. 44.

STUDY OF HARMONIC CURRENTS GENERATED IN MAGNETIC AMPLIFIERS, by John Hilliard Gerth. Jun 1947. 53p photos, diagrs, graphs, tables Mi $2.75, Ph $7.50. PB 99783

Investigations were conducted to determine the possibilities of eliminating or reducing the harmonic current content in loads connected to magnetic amplifiers. A theoretical analysis and experimental data are presented which show that only odd harmonic currents are present in the output current when identical core materials are used in the amplifier. A circuit is demonstrated that canceled out the dominant third harmonic current, but the fifth and higher odd harmonic currents remained. Thesis-Pennsylvania State College.

Miscellaneous

CONFERENCE ON GALLOPING CONDUCTORS HELD NOV 22 AND 23, 1949. National Research Council of Canada. Radio and Electrical Engineering Division. Laboratories. 1949. 48p diagrs, tables Mi $2.50, Ph $6.25. PB 99859

Recent experiences of public utility companies and recent field tests are outlined. A portion is devoted to theoretical discussions of galloping phenomenon and proposed future research. NRCC 2006. NRCC ERB 228.

PANEL COOLING DESIGN INCLUDING LIGHTING LEAD, by Merl Baker. Kentucky. University. Engineering Experiment Station, Lexington, Ky. Mar 1949. 132p diagrs, graphs, tables Available free from Engineering Experiment Station, University of Kentucky, College of Engineering, Lexington 29, Ky. PB 99865

Cooling panels can directly remove from the conditioned space a portion of the lighting load in the order of 65 per cent of the total electrical input. The energy that is directly transferred to the cooling panel does not heat the air in the room. For installations in which the lighting load is appreciable, panel cooling is superior to convective cooling in an economic respect. Bulletin no. 11; publications, v. 3, no. 3.

PASS - THROUGH OVENS FOR SELENIUM RECTIFIERS. Süddeutsche Apparate-Fabrik G.m.b.H., Nürnberg, Ger. 1937-1943. 14f drawings only Mi $1.75, Enl Pr $3.75. PB 99914

1. Rectifiers, Selenium - Germany 2. Micro BIOS FD 1913/49, Frames 1-7.

Drawings refer to oven mentioned in CIOS XXVII-45, p. 9 (PB 423). Abstracts available as PB 99914s. 1p. Mi $1.25, Ph $1.25.

FOOD AND KINDRED PRODUCTS

APPLICATION OF THE ISOTOPE TECHNIQUE TO THE STUDY OF FOOD UTILIZATION, BY E. G. MILLER, JR., D. RITTENBERG, AND D. B. SPRINSON. U. S. QUARTERMASTER FOOD AND CONTAINER INSTITUTE. NOV 1945 TO SEP 30, 1948. Sep 1948. 21p tables Mi $2.00, Ph $3.75. PB 99694

This technique offered a tool which affords information about the living organism in the completely physiological state. The major results of this work have given an estimate of the rate of protein synthesis in the human as well as the size of the nitrogen pool. The approach to problems of protein turnover exemplified offer a sounder basis than has heretofore been available for the study of nutritional and endocrine relationships. Tables and bibliography are included. QMC FCI Contract W-11-009-qm-70234 Rept. 5.

EFFECT OF FOOD AND ENVIRONMENT ON FOOD INTAKE, BY JOHN A. BROBECK, JACK L. STROMINGER AND RUTH LEYENDECKER. U. S. QUARTERMASTER FOOD AND CONTAINER INSTITUTE. OCT 1, 1945-JUN 30, 1949. Jun 1949. 4p Mi $1.25, Ph $1.25. PB 99633

This is only a general summary with references to the appropriate phase reports. QMC FCI Contract W-11-183-qm-5802 Rept. 11.

MINCING MACHINES AND SAUSAGE FILLERS. Menck & Hambrock G.m.b.H., Hamburg, Ger. Aug 1945 - Apr 1946. 25f drawings only Mi $2.00, Enl Pr $5.00. PB 99919

1. Sausage - Manufacture - Germany 2. Micro BIOS FD 218/47, Frames 1-3. Abstract in English. Abstract available as PB 99919s. 1p. Mi $1.25, Ph $1.25.

SAUSAGE FILLING AND TYING MACHINE. Rohwer, Franz, Maschinenfabrik & Eisengiesserei, Neumünster, Ger. Nov 1938. 10f drawings only Mi $1.25, Enl Pr $2.50. PB 99918

1. Sausage - Manufacture - Germany 2. Micro BIOS FD 941/47, Frame 1. Abstract in English. Abstract available as PB 99919s. 1p. Mi $1.25, Ph $1.25.

STUDIES ON THE RESPIRATION OF THE WHITE POTATO. IV. CHANGES IN METABOLIC CHARACTERISTICS OF WHITE POTATO AS AFFECTED BY THE CONDITIONS OF STORAGE, by Arthur L. Schade, James L. Wallerstein, Robert Reinhart, and Hilton Levy. July 1, 1948-June 30, 1949. U. S. Quartermaster Food and Container Institute. Jun 1949. 15p graphs Mi $1.75, Ph $2.50. PB 99632

The effect of storage at 7°C. for periods up to 20 weeks, as well as the effect of such storage followed by a week of conditioning at 20°C. on a number of metabolic and enzymatic activities have been reported. The activities studied were: respiration in air and in gas mixtures in both light and in the dark. Action of potato homogenate on p-phenylenediamine with and without added cytochrome c; and on o-phenylenediamine with and without H_2O_2, catecholase activity, reducing sugar concentrations, and discoloration capacity, were also investigated. Bibliography and graphs attached. QMC FCI Contract W-11-183-qm-198 Rept. 8.

STUDY OF THE PHYSICAL AND CHEMICAL CHANGES OCCURING IN BREAD DURING STORAGE, by W. F. Geddes, R. A. Bottomley, C. W. Bice and R. Stenberg. March 1 to Jun 30, 1949. U. S. Quartermaster Food and Container Institute. Jun 1949. 40p graphs, tables Mi $2.25, Ph $5.00. PB 99701s

1. Bread - Storage 2. Bread staling 3. Minnesota. University. Division of Agricultural Biochemistry 4. QMC FCI Contract W-11-183-qm-5800 Rept. 10. Supplement 1 to PB 99701.

FUELS AND LUBRICANTS

BRIQUETTING OF DRIED LOW-RANK WESTERN COALS, by Charles C. Boley and Neal Rice. Wyoming. University. Natural Resources Research Institute, Laramie, Wyo. Nov 1949. 81p photos, drawings, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $2.25. PB 99806

COMPLETE ACCOUNT OF THE FISCHER-TROPSCH PROCESS AND ANCILLARY PLANT. Ruhrchemie A. G., Oberhausen-Holten, Ger. 1938-1946. 611f drawings, photos, graphs, tables Mi $9.00, Enl Pr $81.25. PB 99927
1. Fischer-Tropsch process - Germany 2. Micro BIOS FD 1196/49, Frames 1-499-81 3. BIOS FD 1722, Item 22, LD p. 176.
Abstract available as PB 99927s. 2p. Mi $1.25, Ph $1.25. These papers are listed on page 176 of BIOS FD 1722, Item 22 (PB 93498).

COST ESTIMATE FOR THE PRODUCTION OF PURE ETHYLENE AT HEYDEBRECK. I. G. Farbenindustrie A. G., Oppau, Ger. Apr 1942. 6f (Text in German) Mi $1.25, Enl Pr $2.50. PB 99917
1. Ethylene - Production - Germany 2. Micro BIOS FD 590/48, Frames 1-5.
Abstract in English.

OIL TANK CAPACITY AND PRESSURE TEST, MODEL 18S, by Kueck. Beech Aircraft Corp., Wichita, Kansas. Dec 1938. 8p Mi $1.25, Ph $1.25. PB 99763
Tests were conducted to substantiate the compliance of the model AT-11 oil tank with the requirements of the CAA. These requirements specify that oil tank must provide expansion space equal to not less than 10% of the total tank capacity and that the tank shall be capable of withstanding an internal test pressure of 5 lb/sq in. without failure or leakage. Tests show that the expansion space of this tank was equal to 26.4% of the total capacity and no leakage, distortion of defects of any nature were observed. Structural analysis no. 19. Report 913.

HIGHWAYS AND BRIDGES

FILLING AND SEALING MATERIALS FOR JOINTS IN CONCRETE ROADS, by R. S. Millard. Gt. Brit. Dept. of Scientific and Industrial Research. Road Research Laboratory, Harmondsworth, Eng. 1949. 14p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.15. PB 99402
A survey is made of fills and their characteristics. Rubber-bitumin mixtures were found most satisfactory. DSIR RRL RN 7.

VARIABLE SPAN SUSPENSION BRIDGE, BY W. DIXON SMITH. PRELIMINARY STUDY. U. S. Engineer Board. May 1946. 106p drawings, graphs, tables Mi $4.50, Ph $13.75. PB 99471
This report covers a study made to determine the most satisfactory type of variable-span suspension bridge. That a clean-cut and simple stiffened suspension bridge can be designed, suitable for all practical spans up to 640 feet, capable of passing 50-ton tanks; that it is the only type of structure capable of passing 50-ton tanks over the range of spans considered. ENG EB Proj BRS 419. ENG EB Rept 977.

INSTRUMENTS

A.E.P. 908 SCALER; PROVISIONAL INSTALLATION AND OPERATING INSTRUCTIONS, by W. D. Howell. National Research Council of Canada. Atomic Energy Project. Oct 1949. 12p tables Available from the National Council of Canada,

Chalk River, Ontario, $.10. PB 99664

The scaler type AEP 908 is a comprehensive scaling system designed for standard rack or bench mounting. It consists of a base unit or chassis around which is built up, by the employment of plug-in units, scaler assemblies to meet particular requirements. Privision is made for either manual or automatic operation. NRCC 2049. NRCC IM-5.

AMES PORTABLE HARDNESS TESTER, FOUR-INCH MODEL, by W. J. Fedyna. U. S. Naval Air Material Center. Aeronautical Materials Laboratory, Philadelphia, Pa. Sep 1948. 23p photos, tables Mi $2.00, Ph $3.75. PB 99792

Tests were conducted to determine the accuracy and adaptability of a 4'' model of the Ames Portable Hardness Tester which is used for determining the hardness of ferrous and non-ferrous materials in the field on assembled aircraft. The instrument was tested by comparing it with the hardness readings obtained with a new standard laboratory Rockwell Hardness Tester. The hardness readings obtained with the Ames Portable Hardness Tester are tabulated. NAM AML AE 411021 Part II.

COUNTING RATE METER BASED ON A DESIGN BY M.I.T., by R. L. Sternberg. Massachusetts Institute of Technology. Dec 1946. 10p diagr, tables Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99832

Descriptions and drawings of an instrument designed to count beta and gamma radiations operating from a Geiger-Mueller tube. MDDC 766.

DEVELOPMENT OF EQUIPMENT AND PROCEDURES FOR CALIBRATION OF PITOT-STATIC TYPE UNDERWATER LOGS, by J.V.H. Allen. U. S. Naval Research Laboratory, Bellevue, D. C. Jun 1949. 37p drawings, graphs, tables Available from Cffice of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $1.00. PB 99614

Report on final development of necessary equipment, methods, and operating procedures for measuring differential pressures developed by the pitot-static type of rodmeter on underwater log systems during measured-mile runs, and for simulating these runs, in order to calibrate and adjust the logs for accuracy of speed and distance indications. Specifications were prepared on the final design of the equipment. A manual covering calibration techniques and operating instructions is included as an appendix. NRL Problem E04-09D (NS681-053). NRL E-3480.

49-POSITION TRANSLATOR SWITCH. PART II. Engineering Research Associates, Inc. St. Paul, Minn. Nov 1948. 24p diagrs Mi $2.00, Ph $3.75. PB 99672

This report reviews the work leading to the development of the 49-position translator switch. The general case of a 2n position switch is first considered in order to obtain various formulae. The component values needed for a specific switch are obtained next by substituting the proper value of n in these formulae. Subsequently, a 16 position switch was constructed in order to permit an experimental check of the switch design on a small scale, the 49-position was built later using the plan of design which had proved most effective on the smaller switch.

INVESTIGATION OF SOLID ACOUSTIC DELAY LINES FOR THE STORAGE OF DIGITAL INFORMATION, by W. P. Horton and S. M. Rubens. Engineering Research Associates, Inc., St. Paul, Minn. Jun 1947. 31p photos, drawings Mi $2.25, Ph $5.00. PB 99666

The possibilities of storage of digital conformation in solid delay lines are discussed. Experimental results are given for delay lines of several types having delays of 100 to 1000 microseconds. Using high ultrasonic carriers it is believed possible to store information at pulse rates greater than 10^6 per second. Prepared for Bureau of Ships under Contract NObs-28476. See also PB 99667 and PB 99668.

MAGNETIC RECORDING OF PULSES FOR THE STORAGE OF DIGITAL INFORMATION. ENGINEERING RESEARCH ASSOCIATES, INC., ST. PAUL, MINN. SUMMARY REPORT. Jun 1947. 53p drawings, graphs, tables Mi $2.75, Ph $7.50.
PB 99668

A number of magnetic recording tapes were tested for their pulse-recording characteristics under conditions such that the recording and reproducing heads were not in contact with the surface of the tape. The tapes were cemented to a drum whose peripheral speed ranged from 125 to 1570 inches per second. A satisfactory head which can be used for recording, reproducing and erasing operations was developed for work at pulse rates up to 20,000 or more per second. The number of ampere-turns, with which this head should be energized to erase and record on each tape to give maximum signal amplitude, was determined. The character and amplitude of the background signal of d-c erased tapes are discussed. Also the effects of changing the tape velocity, head displacement, pulse duration and pulse repetition rate on the signal amplitude and resolution between successive reproduced signals are described. See also PB 99666 and PB 99667.

MAINS GEIGER AND SCINTILLATION PROBE MONITOR AEP 1903S. National Research Council of Canada. Atomic Energy Project. Jan 1949. 8p photo, diagr, graph Available from National Research Council of Canada, Chalk River, Ontario $.10.
PB 99760

A description of a transportable Geiger and Scintillation probe monitor capable of measuring low values of α, β or γ radiation with a probe at distances up to 100 feet from main instrument. NRCC 2042. NRCC IM-4.

MANUFACTURING SPECIFICATIONS FOR THE PORTABLE GM TUBE SURVEY METER, by John Dorsey. U. S. Atomic Energy Commission. Technical Information Branch, Oak Ridge, Tenn. May 1944. 7p drawing, tables Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10.
PB 99835

A schematic diagram # PM 10219; photograph # PM10219-A; diagram showing location and position of lables #PM 10219 B and parts list. MDDC 805.

PORTABLE PRECISION FREQUENCY METER, by G. K. Jensen and James E. McGeogh. U. S. Naval Research Laboratory, Bellevue, D. C. Sep 1949. 30p photos, drawings, graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.75.
PB 99586

The frequency meter proposed is intended for portable use in measuring any frequency in the range of 5 Mc to 1407 Mc to an accuracy within three parts per million, 0.0003 percent. This self-contained frequency meter provides a stable comparison frequency of known calibration which is compared with the unknown frequency through a crystal mixer, video amplifier type receiver, and the unknown is identified by the use of the associated filter and indicator circuits. NRL Problem R10-49D (NL 490-018). NRL R 3527.

PRECISION STANDARDS OF MINUTE CAPACITANCE INCREMENTS, by John A. Connor. U. S. Naval Research Laboratory. May 1949. 96p photos, diagrs, graphs Mi $4.25, Ph $12.50. PB 99757

The sources of error involved in concentric-cylinder capacitors are analyzed with attention to the effects of electrode eccentricity, ellipticity, taper, axial inclination, fringing capacitances, series inductance, and mechanical vibrations. A solution to the problem of designing coaxial-cylinder capacitors to produce very small capacitance increments is given. A particular differential coaxial capacitor is described. NRL R-3471.

RADIO INDICATOR, by L. M. Wrye. U. S. Naval Research Laboratory, Bellevue, D. C. Aug 1949. 12p photos, diagrs, graphs, tables Mi $1.75, Ph $2.50. PB 99687

A circuit is described which produces a single voltage pulse the amplitude of which is proportional to the log of the ratio of the amplitudes of two input pulses. Input amplitudes of less than 1 volt to greater than 40 volts may be accommodated and pulse lengths as short as 0.25 microsecond may be used. The equipment in which the circuit is employed, displays the ratio as a spot on a cathode-ray tube with deflection proportional to the log of the ratio. NRL R 3518.

REFLECTION INTERFERENCE FILTERS FOR THE INFRARED, by D. V. Estes and M. E. Barbour. U. S. Naval Research Laboratory, Bellevue, D. C. Aug 1949. 29p graphs Mi $2.00, Ph $3.75. PB 99758

Reflection interference filters have been made using aluminum as the mirror surface and also as the semitransparent metallic film. Five materials have been investigated for use as the dielectric layer: Al_2O_3 formed by anodization, and SiO, CaF_2, MgF_2, and Sb_2S_3 by evaporation. The details pertaining to the construction of these filters are described. NRL R-3523.

SPECIFICATIONS FOR THE TYPE 961A SCALER, by Ernest Wakefield. U. S. Atomic Energy Commission. Argonne National Laboratory. Jan 1944. 11p photos, tables Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99831

Specifications and testing procedure for a Beta Scaling Circuit; photographs; circuit diagram. MDDC 833.

STORAGE OF NUMBERS ON MAGNETIC TAPE. ENGINEERING RESEARCH ASSOCIATES, INC., ST. PAUL, MINN. SUMMARY REPORT. Jun 1947. 16p photos, diagrs, drawings Mi $1.75, Ph $2.50. PB 99667

The use of magnetic tape for storing numbers in computing machines possesses advantages over other systems when the numbers must be changed frequently or scanned a large number of times. A relatively simple device is described which permits a repetitious observance of a series of numbers with or without altering their value or arrangement. See also PB 99666 and PB 99668.

THERMAL MEASURING INSTRUMENTS, MOISTURE AND VISCOSITY CONTROL APPARATUS, CLIMATIC CABINETS AND RELATED APPARATUS. Brabender G.m.b.H., Duisburg, Ger. 1937-1940. 177f photos, drawings (Text in German and English) Mi $6.50, Enl Pr $23.75. PB 99915

1. Instruments, Measuring - Thermo-technical - Germany 2. Thermal measurements - Germany 3. Viscometers - Germany 4. Moisture - Determination - Test-

ing equipment - Germany 5. Micro BIOS FD 610/48, Frames 1-155.
Firm is mentioned in BIOS FR 1672 (PB 93488). Abstracts available as PB 99915s. 2p. Mi $1.25, Ph $1.25.

LEATHER AND LEATHER PRODUCTS

TECHNIQUE OF THE GERMAN LEATHER INDUSTRY. BIOS TRIP 2655 PT. 2. DESCRIPTION OF THE MACHINERY, EQUIPMENT, PROCESSES, CHEMICALS ETC. CONNECTED WITH THE LEATHER INDUSTRY. British Intelligence Objectives Sub-Committee. n.d. 586f Mi $9.00, Enl Pr $77.50. PB 99921
1. Leather industries - Germany 2. Leather - Chemical agents - Germany 3. Leather - Manufacture - Germany 4. Leather - Tanning - Germany 5. BIOS trip 2655 pt. 2 6. Micro BIOS FD 934/49, Frames 834-1369.
For pt. 1 see PB 99920.

MACHINERY

AUTOMATIC CONTROL OF PRESTONE TEMPERATURE, ENGINE-OIL TEMPERATURE, CYLINDER TEMPERATURE OF AIR-COOLED ENGINES, CARBURETOR-INLET-AIR TEMPERATURE. MODULATING TEMPERATURE CONTROLLER. General Electric Co., Schenectady, N. Y. Sep 1942. 19p photos, diagrs, drawings, graphs Mi $1.75, Ph $2.50. PB 99770
This system is of the modulating type of control and operates between an upper and lower temperature limit. The function of each individual unit, as well as the circuit diagram are discussed in detail, and suggestions are made for proper applications.

EINLEITUNG UND GRUNDFRAGEN ZUR SPANNUNGSKORROSION (INTER CRYSTALLINE CORROSION IN LJUNGSTRÖM TURBINES) von A. Rau. Hamburger Elektrizitätswerke A. G., Hamburg, Ger. 1940-1945. 28f illus (Text in German) Mi $2.00, Enl Pr $5.00. PB 99913
1. Turbines, Ljungström (Trade name) 2. Turbines - Blades - Corrosion - Germany 3. BIOS FR 500 LD 4. Micro BIOS FD 738/48, Frames 1-22.
Abstract in English. Abstract available as PB 99913s. 1p. Mi $1.25, Ph $1.25. Appendix to BIOS FR 500 (PB 34733). Illustrations will not reproduce well.

OIL DILUTION TEST: ARMY ACCEPTANCE DEMONSTRATION ON THE ALLISON V-1710-93 (E11) ENGINE, by F. G. Dougherty. General Motors Corp. Allison Div., Indianapolis, Ind. Apr 1945. 54p diagrs, graphs Mi $2.75, Ph $7.50. PB 99772
An experimental engine was built and tested in order to demonstrate the ability of the V-1710-E11 engine to operate on diluted oil. Results showed that the E-11 engine with a winterized front cover will operate, without exceeding a three quart breather oil loss, as high as the 24.5% dilution with cold oil and 14% dilution with hot oil. Engine oil pressured during diluted operation are shown on curves. Experimental Department report no. L2-37.

TEST OF TOOL - PISTON PIN REMOVING, BY A. V. SMITH. U. S. ARMY AIR FORCES. AIR PROVING GROUND COMMAND, EGLIN AIR FORCE BASE, FLA. FINAL REPORT. Feb 1946. 23p photos, diagrs Mi $2.00, Ph $3.75. PB 99790

Tests were performed to determine whether an experimental tool assembly is a suitable replacement for standard Class 18-A tools when removing piston pins on aircraft engines. The piston-pin removing tool consists of a metal band formed to a radius of 3-1/4 in. A power screw thrust-nut is attached to the open ends of the bend by screws, which permit the nut to swivel. The overall length of the tool is approximately 16 in., and the one-inch dia power screw has a travel of 6-1/4 in. The assembly weighs 5 1/4 lb. APGC Proj P3-45-70.

THE USE OF THE VACUUM SPINNING MACHINE IN THE CERAMIC TEST PROGRAM, by Robert F. Kimpel. Illinois. University. Dept. of Ceramic Engineering, Urbana, Ill. Feb 1947. 18p photos, drawings, tables Mi $1.75, Ph $2.50. PB 81707

The purpose of this memorandum report is to describe the vacuum spinning machine, its installation and use in stressing ceramic body specimens to failure. Appendix II, covers, descriptions, installation and operation; Appendix III, design and forming of test rotors; and Appendix IV, test results. Ten illustrations are included. Contract W-33 038-ac-14520 (16071). IU DCE MR 9.

VORVERSUCH ZUR LEISTUNGSSTEIGERUNG MITTELS ALKOHOLEINSPRITZUNG BEI FOERDERUNG DES ALKOHOLS DURCH LADEDRUCK. (PRELIMINARY EXPERIMENTS FOR PERFORMANCE INCREASE BY MEANS OF ALCOHOL INJECTED THROUGH THE SUPERCHARGER), by Herr Simmank. Bayerische Motoren Werke A. G., Flugmotorenbau G.m.b.H., Munich, Ger. Mar 1943. 14p drawings, graphs (Text in German and English) Mi $1.75, Ph $2.50. PB 99794

A preliminary investigation was conducted on the alcohol injection system of the BMW 801A or D engine to study the effects of feed line diameter and length, tank position and alcohol level on the feed rate, etc. The results of the individual investigations are shown in graphical form. VB 101. Reel 1 - Item C-1. Translated by the Research Dept. Union Oil Co. of Calif. (Dr. O. L. Polly). BMW EZV 283/43. BMW 3381.

MEDICAL RESEARCH AND PRACTICE

AIR POLLUTION IN DONORA, PA. EPIDEMIOLOGY OF THE UNUSUAL SMOG EPISODE OF OCTOBER 1948. PRELIMINARY REPORT by H. H. Schrenk, Harry Heimann, George D. Clayton, W. M. Gafafer, Harry Wexler. U. S. Public Health Service. 1949. 197p photos, maps, graphs, tables Mi $7.00, Ph $25.00. PB 99414

The report is composed of: I. Introduction, pages -14. II. Biological studies, pages 5-77. III. Atmospheric studies, pages 79-159. IV. Discussion of cause of episode, pages 161-162. V. Summary and discussion, pages 163-165. Three appendices are attached. Public health bulletin no. 306.

EYE FIXATIONS OF AIRCRAFT PILOTS. I. REVIEW OF PRIOR EYE-MOVEMENT STUDIES AND A DESCRIPTION OF A TECHNIQUE FOR RECORDING THE FREQUENCY, DURATION AND SEQUENCES OF EYE FIXATION DURING INSTRUMENT FLIGHT, by Richard E. Jones, John L. Milton and Paul M. Fitts. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton,

Ohio. Sep 1949. 30p photos, diagrs, tables Mi $2.00, Ph $3.75. PB 99638
This report is the first in a series dealing with the measurement of the eye movements of pilots during instrument flight. The literature on eye movements during reading and related visual tasks is summarized and one previous experiment dealing with the recording of eye movements during instrument flight is reviewed. The apparatus and techniques employed in the present series of studies, the flight procedures, and the methods used in analyzing eye-movement records are described in detail. AAF TR 5837.

PHYSIOLOGICAL ASPECTS OF AIR EVACUATION, by Harry F. Adler and Forrest E. Snapp. U. S. Air Force, School of Aviation Medicine, Randolph Field, Texas. Oct 1949. 21p table Mi $2.00, Ph $3.75. PB 99419
Emphasis is placed on a discussion of mechanisms so as to orient the student Flight Nurse concerning the effects of altitude on various types of patients. Bibliography attached.

RADIOLOGICAL USE OF HIGH ENERGY DEUTERON BEAMS, by C. A. Tobias, Hal Anger, P. P. Weymouth and R. Lowry Dobson. U. S. Atomic Energy Commission. May 1948. 14p photo, drawings, graphs Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99353
Suitability of the 190 Mev deuteron beam as a source of radiation for producing biological effects; fast particle beams as precision tools in the study of the biological effects of radiation and in experimental tumor therapy; lethal effect of high energy deuteron beam on Bagg Albino mice; the LD 50 was 150 rep when the length of exposure was 15 seconds; the LD 50 appeared to change approximately proportionately to the fourth root of the length of exposure time. AECD 2099-A.

RATIO OF URINARY AMINO ACID NITROGEN TO CREATININE AS A SENSITIVE TEST FOR URANIUM POISONING IN THE RABBIT, by Harry Berke. U. S. Atomic Energy Commission. Feb 1948. 53p graphs, tables Limited supply mimeo $.25. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.25. PB 99376
Discussion of the method with specific experimental data for illustrative purposes; advantages and disadvantages of the test are discussed; procedure described; 59 references; figures. AECD 2276.

SOME OBSERVATIONS ON THE EFFECTS OF ALTITUDE ON METABOLISM. III. HEMOGLOBIN METABOLISM AND ERYTHROPOIESIS, by Roger K. McDonald and Vincent C. Kelley. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Oct 1949. 12p diagr, tables Mi $1.75, Ph $2.50. PB 99418
The investigations reported are concerned with the alterations in hemoglobin metabolism and erythropoiesis that occurred in the group of 26 young, adult males during a sojourn of 13 days at an altitude of 10,000 feet. AAF SAM Proj 21-02-029 Rept. 3.

URANIUM POISONING, by Sol Wexler. California. University. Radiation Laboratory. Jul 1942. 4p Limited supply mimeo $.05. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05. PB 99828
Poisoning from uranium is reported as coming through inhalation of UxOy dust or through contact with sol. salts; appears as inflamation of the kidneys. MDDC 1054.

METALS AND METAL PRODUCTS

ALUMINUM-OXIDE-PROTFCTED EVAPORATED ALUMINUM MIRRORS AND REFLECTION-TYPE INTERFERENCE FILTERS USING ALUMINUM OXIDE AS DIELECTRIC, by Georg Hass. U. S. Army. Corps of Engineers. Engineer Research and Development Laboratories. Jun 1948. 11p photo, drawing, graph Mi $1.75, Ph $2.50. PB 99479

1. Mirrors - Metal evaporating 2. Aluminum, Evaporated 3. Filters, Light 4. ERDL 1051.

Project 8-23-02-002.

BETA-RAY SPECTRA OF Cu^{64} AND THE RATIO OF N, by C. S. Wu and R. D. Albert. U. S. Atomic Energy Commission. Feb $\bar{N}$- 1949. 4p graphs Limited supply mimeo $.05. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05. PB 99344

Previously reported Cu^{64} spectra obtained with Columbia's helical focussing spectrometer have been replotted according to the revised correction factors of the screening and relativistic effects; discussion of theory; figures. AECD 2504.

COMPARISON OF CORROSION PREVENTIVE COATINGS FOR LOW CARBON LOW ALLOY STEEL, by J. P. Dobbins. North American Aviation, Inc. Engineering Dept., Inglewood, Calif. Feb 1942. 19p photos Mi $1.75, Ph $2.50. PB 99967

Comparison tests of various coating systems were conducted to evaluate their performance for protecting low carbon low alloy steels against corrosion. Of the systems investigated the following were found to give the best performance in the order given: Inorganic coatings of Parkerize, Bonderize or Cadmium Plate plus organic coatings of zinc chromate primer. Exposure data for small panels are tabulated.

COMPREHENSIVE STATISTICS ON PRODUCTION OF PIG-IRON, CRUDE STEEL, SEMI-FINISHED AND FINISHED ROLLING-MILL PRODUCTS BY ALL CONCERNS IN GERMANY AND IN OCCUPIED COUNTRIES. Reichsvereinigung Eisen und Wirtschaftsgruppe Eisen Schaffende Industrie. 1942-1944. 675f Mi $9.00, Enl Pr $88.75 PB 99547

1. Cast iron - Production statistics - Germany 2. Steel - Production - Germany 3. Micro BIOS FD 1670/45, Frames 7823-8545.

Abstract available as PB 99547s. 2p. Mi $1.25, Ph $1.25.

EIGENSCHAFTEN UND ANWENDUNG METALLISCHER GLEITLAGERWERKSTOFFE. (PROPERTIES AND APPLICATION OF METALLIC FRICTION BEARING MATERIALS), by Richard Weber. Metallgesellschaft A. G., Frankfurt am Main, Ger. Aug 1948. 25p graphs, tables Mi $2.00, Ph $3.75. PB 99858

A comprehensive study of all the standard German non-ferrous alloy bearing metals, then compositions, physical and mechanical properties, and their sliding characteristics. Zeitschrift für Metallkunde, Vo. 39, 8 (Aug 1948). STS 366.

EXPOSURE GRAPHS FOR RADIUM RADIOGRAPHY OF STEEL, by A. Morrison. National Research Council of Canada. Division of Physics. Industrial Radiology

Laboratory. n.d. 8p graphs Mi $1.25, Ph $1.25. PB 99697
A convenient "tool" for the radiographer in that metal thickness on the one band is plotted against a factor derived from size of radium source in milligrams, distance from source to film and exposure time. NRCC 2009.

GERMAN STANDARDS: SEAMLESS MILD STEEL PIPES. Deutscher Normenausschuss, Berlin. Nov 1937-Jul 1940. 22f tables Mi $2.00, Enl Pr $5.00. PB 99804
1. Pipe - Standards - Germany 2. Standardization - Germany 3. Micro FIAT FD 652/49, Frames 1-18.
Includes DIN 1628, 2413, 2440-2441, 2448, 2450-2451, 2453.

GERMAN THEORIES AND ACCOMPLISHMENTS IN THE FIELD OF STRESS-CORROSION CRACKING, by Charles A. Naugle. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. Jun 1947. 81p photos, drawings, graphs, tables Mi $3.75, Ph $11.25. PB 99049
1. Light metals - Corrosion resistance - Germany 2. Aluminum-mangesium-zinc alloys - Corrosion - Germany 3. AAF T-2 TR 1131.
Project no. NTE-31.

HEAT-RESISTANT STEELS. Deutsche Edelstahlwerke A. G., Krefeld, Ger. 1934-1944. 771f photos, diagrs, graphs, tables (Text in German) Mi $9.00, Enl Pr $102.50. PB 99924
1. Thermanit (Steel) 2. Remanit (Steel) 3. Steels - Heat resisting - Germany 4. Thermax F (Trade name) 5. Thermax A (Trade name) 6. Recromal (Trade name) 7. Megapyr (Trade name) 8. Micro BIOS FD 1617/46, Frames 1-767.
Includes English abstract.

LEGIERUNGEN. (ALLOYS). Heraeus-Vacuumschmelze A. G., Hanau, Ger. 1944. 4p drawings, graphs, tables only Mi $1.25, Ph $1.25. PB 94644
1. Alloys - Germany 2. SIG IS T 150 3. CESL TL/UK 1662.
Legends in German and English.

LOW TEMPERATURE PROPERTIES OF METALLIC MATERIALS, BY W. KUCHS. NORTH AMERICAN AVIATION, INC., INGLEWOCD, CALIF. PRELIMINARY SURVEY. Jul 1946. 15p tables Mi $1.75, Ph $2.50. PB 99943
An investigation of literature survey was conducted to study the properties of metallic materials at subatmospheric temperatures. Findings revealed that the strength and hardness of all metallic materials increase with a decrease in temperature below normal or room temperature. Report no. NA-46-633 (CP-891).

MAGNESIUM ALLOYS IN DESIGN AND FABRICATION; MODEL AND DESCRIPTION, by R. O. Brittan. Northrop Hendy Company, Northrop Field, Hawthorn, Calif. May 1943. 54p graphs Mi $2.75, Ph $7.50. PB 99942
Data are given for the design and fabrication of magnesium alloy structures. The mechanical properties of J-1 alloy (or AMC57S), design data for magnesium alloy columns of stable cross section, curved plates in compression, and design data for magnesium alloy columns having thin walls and open cross-sections, are discussed with all pertinent data tabulated. Report no. S-94.

MAGNETIC CORE MATERIAL. PROGRESS REPORT NO. 7, CONTRACT NO A(S) 8959, by S. J. Sindeband, R. Steinitz, F. W. Glaser, R. Wachtell. American Electro

Metal Corp., Yonkers, N. Y. Jul 1948. 17p diagrs, graphs, table Mi $1.75, Ph $2.50. PB 99965

This progress report dealing with magnetic core materials includes experimental data which was accumulated up to 1 July 1948. A table has been prepared listing the magnetic properties of some characteristic magnetic core specimens. The table consists of three parts, preparation and composition of the samples, D-C magnetic properties and resistivities, and A-C magnetization and watt losses.

PRODUCTION AND TESTING OF ENAMELLED FINE COPPER WIRE. Siemens-Schuckertwerke A. G., Kabelwerk, Ger. 1945. 25f (Text in German) Mi $2.00, Enl Pr $5.00. PB 90838

1. Wire, Copper - Enameled - Germany 2. Micro BIOS FD 1716/46, Frames 2-23 3. Micro BIOS DOC 723, Frames 2-23.

Abstract available as PB 90838s. 1p. Mi $1.25, Ph $1.25.

STEEL PREFORMED RINGS FOR ELECTROFORMED COPPER SEARCHLIGHT REFLECTORS, by Newall F. Blackburn. U. S. Engineer Board. Sep 1946. 21p photos, table Mi $2.00, Ph $3.75. PB 99475

1. Reflectors, Copper 2. Reflectors, Searchlight 3. Rings, Steel 4. ENG EB Rept 988 5. ENG EB Proj ELS 413.

SUBSTITUTE METALS IN COMBUSTION ENGINES, by Mitsumasa Ueda. 1943. 88p graphs, tables (Text in Japanese) Mi $3.75, Ph $11.25. PB 99791

The application of nickel in components and accessories of the internal combustion engine is reviewed to establish a basis for a possible substitution of nickel by Cr, W, Mn, and Si alloys because of the nickel shortage in Japan. Japanese and German alloys, are enumerated and their metallurgical properties and application possibilities are discussed. Particular attention is paid to the yield point, fatigue strength, and plasticity of the alloys, as well as to their behavior when tempered, quenched, and aged, and to their heat and low-temperature resistance. Abstract in English.

SYSTEM CHROMIUM-CARBON, by David S. Bloom and H. J. Grant. Massachusetts Institute of Technology. Dept. of Metallurgy. Oct 1949. 26p photos, drawings, graph, tables Mi $2.00, Ph $3.75. PB 99970

With reference to high temperature alloys a careful investigation of the chromium-carbon phase diagram. Various methods of trying to obtain and prove a Cr-C phase in addition to the established Cr, Cr_4C, Cr_7C_3 and Cr_3C_2 phases proved unsuccessful. Bureau of Ships Task order 4, Contract NOBs25391. NAVSHIPS RM 4-49.

TESTS OF SINTERED BODIES OF IRON-IRON OXIDE AND OF IRON WITH ADMIXTURES OF M_NO-CR_2O_3. Osram G.m.b.H., Berlin. Apr 1944-Jan 1945. 13f graphs, table (Text in German) Mi $1.75, Enl Pr $3.75. PB 99850

1. Iron alloys - Germany 2. Micro BIOS/DOCS/1779/715/90 3. Micro BIOS/DOCS/1779/715/88 4. Micro BIOS FD 520/48, Frames 1-11.

Abstract in English. Abstract available as PB 99850s. 1p. Mi $1.25, Ph $1.25.

ÜBER DEN EINFLUSS EINES IMPFVERFAHRENS AUF DIE GEFÜGEAUSBILDUNG UND DIE TECHNOLOGISCHEN EIGENSCHAFTEN EINIGER GUSSWERKSTOFFE. (INFLUENCE OF INOCULATION ON STRUCTURE FORMATION, AND THE TECHNOLOGICAL PROPERTIES OF SOME CASTING MATERIALS), by Werner Rauterkus.

Mar 1944. 78f photos, drawings, graphs (Text in German) Mi $3.50, Enl Pr $11.25. PB 99847
1. Steel - Casting - Germany 2. Steel - Crystallization - Germany 3. Micro BIOS FD 1421/49, Frames 2-76.
Inaug-diss.-Technische Hochschule, Aix-la-Chapelle. Abstract in English. Abstract available as PB 99847s. 2p. Mi $1.25, Ph $1.25.

VERSCHLEISSFORMEN AN NICHTEISENMETALLEN BEI TROCKENER GLEITREIBUNG. (FORMS OF WEAR OF NON-FERROUS METALS IN DRY SLIDING FRICTION), by W. Rädeker. Aug 1949. 41p photos, diagr, graphs, tables Mi $2.50, Ph $6.25. PB 99041
A careful study and evaluation of the effects of (1) heat, and (2) composition, on the wear of sliding surfaces. Tests under controlled conditions showed that at medium temperatures wear was least with increasing wear at both lower and higher temperatures. Pairs of test pieces composed of non-alloying metals, such as iron and lead, produced least wear. Legends in German. Translation from Metallwirtschaft, vol. 23, no. 22-26, p. 202-215, Jun 1944. STS 77.

WELDABILITY OF ALLOYS FOR HIGH TEMPERATURE SERVICE, BY G. E. LINNERT. AMERICAN ROLLING MILL CO., BALTIMORE, MD. RESEARCH LABORATORIES. FINAL REPORT, CONTRACT NO. N5-ORI-111. Apr 1947. 73p photos, drawings, tables Mi $3.50, Ph $10.00. PB 99529
A wheel-and-bucket design for simulating normal design was developed and tested for various wrought and cast base metal alloys, welds made, tested defects. Major factor in weld failures appears to be due to the susceptibility of the weld metal to the development of segregates.

METEORALOGY AND CLIMATOLOGY

AN ANALYSIS OF THE RELATION BETWEEN HORIZONTAL TEMPERATURE VARIATIONS AND MAXIMUM EFFECTIVE GUST VELOCITIES IN THUNDERSTORMS, by H. Press and J. K. Thompson. Jul 1949. 12p graphs, tables Mi $1.75, Ph $2.50. PB 98034
An analysis is presented of the relations between the horizontal temperature variations and the maximum observed effective gust velocities for the data obtained during operations of the United States Weather Bureau thunderstorm project in Florida and Ohio. The results indicate that the relation when extended to include frontal conditions appears useful for forecasting the intensity of turbulence for thunderstorms in temperate regions. NACA TN 1917.

MINERALS AND MINERAL PRODUCTS

CERAMIC COATINGS AND CERAMIC BODIES FOR AIRCRAFT POWER SYSTEMS, by Dwight G. Bennett. Illinois. University. Dept. of Ceramic Engineering, Urbana, Ill. Jul 1947. 146p photos, graphs Mi $5.75, Ph $18.75. PB 81987
This annual summary report presents the work done on ceramic coatings and

ceramic bodies for aircraft power systems during the year ending June 30, 1947. Work done prior to the last quarter is reviewed with frequent references to appropriate quarterly reports, sections, parts, appendices, tables and figures. Progress made during the last quarter, and hence not previously reported, is described in necessary detail in the proper sections as shown in the table of contents. Figures, tables, and photographs are included. Contract W33-038 ac-14520 (16071). IU DCE 22.

CERAMIC MATERIALS FOR APPLICATION IN THE DESIGN OF JET PROPELLED DEVICES. (1) BUREAU OF STANDARDS BODY 4811C COMPARISON OF TENSILE TO CROSS-BENDING STRENGTH. (2) CROSSBENDING STRENGTH OF HOT-PRESSED BERYLLIA, by A. Philip Welch. Ohio State University, Research Foundation, Columbus, Ohio. Jan 1948. 10p graphs, tables Mi $1.25, Ph $1.25. PB 89706

1. Ceramic materials - Tensile tests 2. 4811C (Ceramic material) 3. Beryllium oxides - Tests 4. U. S. Air Materiel Command. Engineering Division Power Plant Laboratory, Wright Field, Dayton, Ohio 5. AAF TSEPP 39.

THE EFFECT OF SMELTING TIME ON THE PROPERTIES OF A REFRACTORY BASE COAT, by Jay E. Comeforo and Dwight G. Bennett. Illinois, University. Dept. of Ceramic Engineering, Urbana, Ill. Nov 1947. 10p photos, tables Mi $1.25, Ph $1.25. PB 87247

The purpose of this memorandum is to report the changes produced in the properties of a refractory base coating by variations in the length of smelting time of the frit. The experiment procedure and complete data on the results are presented in Appendix I. Appendix II covers changes in composition with smelting time in tabulated form, and discussion of results is presented in Appendix III. IU DCE MR 11.

FIRE RESISTANCE OF STRUCTURAL CLAY TILE PARTITIONS, by Harry D. Foster, Earl R. Pinkston and S. H. Ingberg. U. S. National Bureau of Standards. Oct 1948. 24p photos, drawings, tables Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 99883

The results of fire-endurance or hose stream tests of 20 structural clay tile partitions tested are given. The partitions were 3, 4, and 6 in. thick exclusive of the plaster. Some of the partitions were built of tile laid on end; some, with the tile laid on side; and some, with the tile laid alternately on side and on end. The fire-endurance and the hose-stream tests in this series were made on the same partitions. The hose-stream tests indicated that tile partitions can be considered as meeting the hose-stream requirements applicable to their respective fire-resistance ratings. BMS 113.

HIGH TEMPERATURE CERAMIC AND CERMET MATERIALS, by A. I. Berger. Nov 1947. 13p tables Mi $1.75, Ph $2.50. PB 87244

This paper, on high temperature ceramic and cermet materials, was presented at the Ohio Ceramic Industries Association meeting, Columbus, Ohio, under date of Nov. 7-8, 1947. Two charts, the melting point and stability of high-melting metal-base compounds, and physical and chemical properties of ten ceramic refractories are included.

A METHOD FOR THE DETERMINATION OF THE THERMAL CONDUCTIVITY OF CERAMIC BODIES, BY C. F. LUCKS, J. A. SLYH, AND C. R. AUSTIN. BATTELLE

MEMORIAL INSTITUTE, COLUMBUS, OHIO. REPORT FOR THE PERIOD, JUL 15, 1947 TO AUG 15, 1947. Aug 1947. 6p drawing Mi $1.25, Ph $1.25. PB 85785
In this report data are presented on a method of test, which has been used successfully at Battelle Memorial Institute, for the determination of the thermal conductivity of high-conductivity ceramic bodies at temperatures up to 1650°F. Appendix contains a sectional drawing of apparatus for the determination of thermal conductivity of ceramic bodies. Contract W 33-038 ac-14320 (15990) BMI 30.

MICRO COMBUSTION METHOD FOR THE DETERMINATION OF CARBON, by W. E. Cady and others. U. S. Atomic Energy Commission. Los Alamos Scientific Laboratory. Dec 1945. 10p drawings, table Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99830
The sample is burned in oxygen at low pressure and the gaseous products of combustion are analyzed in a Prescott gas-analysis apparatus. The estimated limit of sensitivity for carbon is 20 ppm on a 50-mg sample. MDDC 889.

NEUTRONS EMITTED BY A RADIUM-BERYLLIUM PHOTOSOURCE, by B. Feld and E. Fermi. U. S. Atomic Energy Commission. Argonne National Laboratory. Nov 1948. 3p table Limited supply mimeo $.05. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05. PB 99801
An account is given of experiments performed at Columbia University in November 1941 on certain properties of the photoneutrons emitted by beryllium irradiated with gamma rays from radium. MDDC 1438.

NIOXIME: A REAGENT FOR PALLADIUM, by Roger C. Voter, C. V. Banks and Harvey Diehl. Iowa State College. Jul 1947. 5p tables Limited supply mimeo $.05. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05. PB 99829
The water soluble 1, 2-dioxime, 1,2-cyclohexanedione-dioxime, called Nioxime, is reported to yield a yellow ppt. with divalent palladium which can be used as a qualitative and quantitative reagent for this ion. MDDC 1095.

PERLITE INSULATION, by G. Hausner. Bell Aircraft Corp., Buffalo, N. Y. Dec 1946. 8p diagrs, graphs Mi $1.25, Ph $1.25. PB 99788
Tests were conducted to determine the insulating properties of 3/4" Perlite and 1" Fiber-glass with an applied heat of 600°F for a period of 5 min. Test specimens were mounted on the substitute door and thermocouple mounted on the center of insulation surface. A thermocouple was suspended in the center of the box to record the air temperature at 6" from the surface of the insulator and another was placed at the end of the box. BTR-46-25.

REFRACTORY INSULATING COATINGS FOR METALS, QUARTERLY REPORT NO. 5, OCT 1, 1947-JAN 1, 1948, by Lawrence D. Hower, Jr., Herbert F.G. Ueltz, Frederick K. Davey. New Jersey Ceramic Research Station, Rutgers University, New Brunswick, N. J. Jan 1948. 26p tables Mi $2.00, Ph $3.75. PB 89246
1. Metals - Coatings, Refractory 2. Coatings, Insulating 3. NJCRS 7.
Contract W 33-038 ac-15800. See also PB 95008, 86371-72, 79511, 79509.

REPORT ON TESTING METHODS FOR CERAMIC MATERIALS FOR CONFERENCE ON CERAMIC TEST PROCEDURES AT DAYTON, OHIO, 26 AND 27 JUNE 1947, by

J. F. McMahon, Frank Silberstein, James Tinklepaugh, L. I. Shaw. New York State College of Ceramics, Alfred, N. Y. Sep 1947. 43p drawing, graph Mi $2.50, Ph $6.25. PB 81980

The purpose of this report is to outline the present status of testing refractory materials by enumerating the established principles and procedures that have been used in the past twenty-five years. Most emphasis has been placed upon tests which give significant quantitative results so that accurate comparison of materials can be made. An introduction or approach to the problems involved in testing ceramic materials may be found in Appendix A of this report. The following tests are discussed in Appendix B through F; modulus of rupture, tensile, torsion, thermal shock, emissivity, thermal expansion, thermal conductivity, and ceramic coating tests. A schematic diagram and a graph are included. Contract W33-038 ac-14233. NSCC S5.

REQUIREMENTS FOR CERAMIC MATERIALS FOR APPLICATION TO AIRCRAFT POWER PLANTS. U. S. Air Materiel Command. Engineering Division. Power Plant Laboratory, Wright Field, Dayton, Ohio. Dec 1947. 12p Mi $1.75, Ph $2.50. PB 87245

1. Engines, Aircraft - Coatings 2. Coatings, Ceramic.

STUDY OF QUALITY CONTROL AND OPERATING LIMITATIONS OF NESA GLASS WINDOWS, by D. DeCourcey. Boeing Aircraft Company, Seattle, Wash. Jun 1948. 62p graphs, diagrs Mi $3.00, Ph $8.25. PB 99769

An investigation was made to determine the allowable manufacturing tolerances of Nesa glass, taking into account the various operating conditions to which it may be subjected. It was also desired to evaluate the operating limitations of a Nesa window for any given characteristics. Document no. D-9170.

ORDNANCE AND ACCESSORIES

MECHANISM OF POWDER BURNING, by Farrington Daniels. Wisconsin. University. Jan 1944. 74p photos, diagrs, tables Mi $3.50, Ph $10.00. PB 99612

1. Powders - Burning rates 2. U. S. Office of Scientific Research and Development 3. OSRD 3206 4. NDRC AOR A-243 5. NDRC H.3.

National Defense Research Committee Armor and Ordnance report no. A-243 (OSRD no. 3206) Sect H, Division 3. Contract OEMsr-762.

PAPER AND ALLIED PRODUCTS

DAYLIGHT RECORDING PAPER, BY FREDERICK ZONS. INDUSTRIAL RESEARCH AND TRADE LABORATORIES, NEW YORK, N. Y. FINAL REPORT. Dec 1947. 12p Mi $1.75, Ph $2.50. PB 98760

A coating for graphitized recording paper was developed which has improved its "whiteness" and clarity of detail. The formula preparation of the coating material is given, together with a complete description of the process for making the paper with the desired characteristics. Contract no. W-36-039 SC 32325 File 16228-PH-46-91 (SCEL). Industrial Research and Trade Laboratories report no. R-9.

NEWSPRINT IN JAPAN, by Harold R. Murdock. Supreme Commander for the Allied Powers. Natural Resources Section. Dec 1949. 37p photos, diagrs, map, tables Mi $2.25, Ph $5.00 PB 99869

A brief history of Japan's pulp and paper industry is followed by descriptions of the major producing mills and of Japanese processes for manufacturing newsprint and for pulping wood for newsprint production. The report concludes that until Japan restores its commercial forests so that it can increase indigenous newsprint production to meet its needs, importation of newsprint paper is the only practical possibility for answering the cultural and economic needs for newsprint. SCAP NRS 124.

PERSONNEL APTITUDE TESTING

AIRLINE PILOT: SURVEY OF THE CRITICAL REQUIREMENTS OF HIS JOB AND OF PILOT EVALUATION AND SELECTION PROCEDURES, by Thomas Gordon. Nov 1947. 140p tables Mi $5.50, Ph $11.50. PB 97829
1. Pilots, Air - Ability tests 2. Pilots, Air - Selection 3. CAA 73.

ANALYSIS OF CAA RECORDS ON AIRLINE TRANSPORT PILOTS, by H. O. Preston. Aug 1947. 40p tables Mi $2.25, Ph $5.00. PB 97828
1. Pilots, Air - Performance records 2. Airplanes, Transport 3. CAA 72.

PILOT FLIGHT EXPOSURE IN CALIFORNIA, ABRIDGED REPORT, by Raymond Franzen. Jan 1949. 33p tables Free from U. S. Dept., of Commerce, Civil Aeronautics Adm. PB 96810

The general purpose of this study was to learn more about civilian flying at present, and to form some estimate of the probable trend of civilian flying in the near future. Specifically, information was gained concerning: 1) The frequency and duration of flying by civilian pilots; 2) the types of flying done by such pilots; 3) differences between those who continue to fly and those who discontinue flying; 4) incidence of accidents among civilian pilots; 5) effect of accidents on pilots; and 6) the use of CAA facilities by civilian pilots. The data were gathered in California, through personal interviews with a random sample of 1,481 pilots, scientifically selected so as to be representative of lists furnished by CAA. CAA SSR 11.

STUDY OF THE ACCURACY OF RECOGNITION OF THE INCIPIENT STALL IN FAMILIAR AND UNFAMILIAR PLANES, by P. J. Rulon. Nov 1947. 143p photos, graph, tables Mi $5.75, Ph $18.75. PB 97827
1. Pilots, Air - Psychological tests 2. Pilots, Air - Coordination tests 3. Engines, Aircraft - Failure 4. CAA 74.

PHOTOGRAPHIC AND OPTICAL GOODS

LIGHT-SENSITIVE DIAZOTYPE PAPERS FOR TROPICAL USE, WILHELM KRIEGER. U. S. ARMY. CORPS OF ENGINEERS. ENGINEER RESEARCH AND DEVELOPMENT LABORATORIES. INTERIM REPORT. Apr 1949. 26p Mi $2.00, Ph $3.75. PB 99890

The diazo process and methods of coating diazotype papers with a sensitizing agent, are described in this report. Coating compounds and formulations are analyzed with respect to factors affecting the self-life of light sensitive diazotype papers. Tests of two such formulations (2-ethoxy-4-diethylamino benzene diazonium chloride and phloroglucinol, and p-ethyl-oexthylamino benzene diazonium chloride and urea of J acid) are presented. ERDL R 1109.

PHYSICS

General

CONDITIONS FOR BLACKBODY RADIATION BY SOLIDS AND GASES, PREPARED BY DR. WOLFGANG FINKELNBURG. U. S. ARMY. CORPS OF ENGINEERS. ENGINEER RESEARCH AND DEVELOPMENT LABORATORIES, FORT BELVOIR, VA. PROJECT 8-23-02-007. May 1948. 14p Mi $1.75, Ph $2.50. PB 99427

A formula is derived for the spectral distribution of the radiant energy emitted per cm^2 of any thermal radiation source (emissive power) as a function of its absorption coefficient a (λ,T) is discussed. The surprising result is that the spectral energy distribution of any incandescent gas or vapor approaches that of the blackbody of the same temperature for a sufficiently thick radiating layer. The continuous spectrum of the sun is discussed in this connection. Technical conclusions are drawn from these theoretical considerations with respect to radiation sources in general, and especially with respect to the high pressure mercury arc, the cesium arc, and the high-current carbon arc. ERDL R 1049.

D-C ANALOG SOLUTION OF SIMULTANEOUS LINEAR ALGEBRAIC EQUATIONS: CIRCUIT STABILITY CONSIDERATIONS, by W. A. McCool. U. S. Naval Research Laboratory, Bellevue, D. C. Sep 1949. 14p diagrs, table Mi $1.75, Ph $2.50. PB 99762

A simple and novel technique has been developed for positively stabilizing the electronic computing circuit usually employed to solve a system of simultaneous linear algebraic equations. The stabilized circuit solves a corresponding system of differential equations, the steady-state solution of which is identical to the desired solution of the algebraic equations. The theory, explaining how stabilization is effected and how the general stability criteria for such computing circuits are satisfied, has been developed in some detail. NRL R 3533.

HEAT TRANSFER LECTURES, VOL II, COMPILED by Don Cowen. Fairchild Engine and Airplane Corp., Nepa Div., Oak Ridge, Tenn. Jun 1949. 345p photos, graphs, tables Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $1.00 PB 99606

1. Heat - Transference 2. Atomic power - Research.
NEPA 979-IER-13. See PB 99121 for vol. 1.

RESEARCH IN THE VACUUM X-RAY REGION FROM 3 TO 20 ANGSTROMS, DEC 1, 1947-JAN 31, 1948, by S. T. Stephenson. Jan 1948. 2p Mi $1.25, Ph $1.25. PB 97797s

Research has been conducted in the vacuum X-ray region from 3 to 20 Angstroms.

Data on the continuous spectrum of W, Cu, and Al are being reduced and corrected for background, counter efficiency, window absorption, and plurality of orders.

Nuclear

INELASTIC SCATTERING OF NEUTRONS, by K. I. Greisen. U. S. Atomic Energy Commission. Technical Information Division, Oak Ridge, Tenn. Dec 1947. 13p diagrs, graphs, tables Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99802

This report describes a study of a method for locating the lowest energy level for inelastic scattering of neutrons by a given material. The method depends on the fact that if two counters have different dependence of sensitivity on energy, and are simultaneously exposed to the same neutron beam, the ratio of counts obtained gives a measure of the average energy. MDDC 1545.

ISOTOPES, A THREE-YEAR SUMMARY OF DISTRIBUTION, WITH EXTENSIVE BIBLIOGRAPHY. U. S. Atomic Energy Commission. Aug 1949. 204p graphs Available from Supt. of Documents, U. S. Gov't Printing Office, Washington 25, D. C. $.45 PB 99501

The stable isotopes, and those produced by the nuclear reaction and the cyclotion are all covered. Full test of known users of isotopes is presented and host of other details of interest to users or would be users of isotopes. Bibliographies are extensive.

LINEAR EXTRAPOLATION LENGTH FOR A BLACK SPHERE AND A BLACK CYLINDER, by B. Davidson and S. Kushneriuk. Mar 1946. 19p graphs, tables Mi $1.75, Ph $2.50. PB 97286

The results obtained in various previous reports on the values of the linear extrapolation length λ for the determination of neutron density by means of the differential equation of the diffusion approximation for the cases of a black sphere and a black infinitely long cylinder in a uniform, non-capturing medium, are summarized and analyzed in this report. NRCC 1880. NRCC MT 214.

METABOLISM OF FISSON PRODUCTS - RADIOTELLURIUM, by L. Jacobson, R. Overstreet and I. Chaikoff. California. University. Radiation Laboratory. Jun 1947. 13p graph, tables Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99798

$Te^{127, 129}$ pptd. from an acid fission mixture in HC1 on CuS-decomposed w. HNO_3 and soln. made 5 N in H F. Tellurium is then removed from soln. on RuS, decomposed w. HNO_3 and boiled $^{W}\cdot HC10_4$. Procedures for obtaining Te^{+6} and Te^{+4} are detailed. MDDC 1005. MDDC CH 2258.

QUANTUM CORRECTIONS TO THE THERMODYNAMIC PROPERTIES OF LIQUIDS, WITH APPLICATION TO NEON, by O. K. Rice. U. S. Atomic Energy Commission. Oak Ridge National Laboratory. Oct 1947. 10p tables Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99834

The equations obtained give for solid neon the same results, within the limits of error, as the usual treatment of a Debye solid with the aid of the Gruneisen equation. To apply the equation to liquid neon, various thermodynamic quantities have been obtained from known values for argon by use of the law of corresponding states.

The difference in volume and specific heat of liquid neon from the values expected from the law of corresponding states have been computed and found to agree reasonably well with the observations. MDDC 1356.

RECOIL BROMINE ATOMS FROM GASEOUS ETHYL BROMIDE ON NEUTRON CAPTURE, by T. H. Davies and Sol Wexler. U. S. Atomic Energy Commission. Argonne National Laboratory. Jun 1948. 32p diagrs, drawings, tables Limited supply mimeo $.15. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.15. PB 99369

Ethyl Bromide was used as a gaseous target for investigation of bond rupture in an (n,γ), reaction; deals mainly with the chemistry of neutron capture by Br^{79} to give the nuclearly excited Br^{80}; theory, procedure, and results are covered; figures; references. AECD 2374.

SAFE HANDLING OF RADIOACTIVE ISOTOPES. U. S. National Bureau of Standards. Mar 1949. 35p Available from Supt. Docs., U. S. Gov't Printing Office, Washington 25, D. C. $.15. PB 99528

Several recommendations suitable for typical laboratory or for small industrial operation. Lists of available radio-isotopes given and principal properties and uses. Transportation and shipping regulations covered. NBS H 42.

THERMAL NEUTRON ACTIVATION CROSS SECTIONS, by L. Seren, H. N. Friedlander and S. H. Turkel. U. S. Atomic Energy Commission. Argonne National Laboratory. Nov 1944. 31p graphs, tables Limited supply mimeo $.15. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.15. PB 99355

A table is given listing 131 activation cross-sections of 65 elements and properties of the radio-isotopes produced; activation method; meas. slow neutron cross-sections. MDDC 613.

PHYSIOLOGY

EFFECTS OF IRRADIATION ON THE BLOOD AND BLOOD FORMING TISSUES, by S. T. Cantril, L. Jacobson and J. J. Nickson. U. S. Atomic Energy Commission. Argonne National Laboratory. Jan 1943. 31p graphs Limited supply mimeo $.15. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.15. PB 99797

A review is given of the effects of external whole body and local irradiation in man and experimental animals. Internal irradiation by radioactive substances in men and experimental animals is considered. MDDC 991.

PRINTING, PUBLISHING AND ALLIED INDUSTRIES

INSTRUCTIONS FOR THE OPERATION AND MAINTENANCE OF THE MICROFILM RAPID SELECTOR, by Mr. Butler. n.d. 16p Mimeo: $.50. PB 97313s

1. Microfilm - Selectors 2. Engineering research associates, Arlington, Va.
3. OTS Cac-47-24, supp.
Supplement to PB 93713.

PSYCHOLOGY

INTERACTION OF RESPONSES TO STEP FUNCTION STIMULI: II. EQUAL OPPOSED STEPS OF VARYING AMPLITUDE, by Douglas C. Ellson, Harris Hill, David R. Craig. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. Aug 1949. 19p diagr, graphs, tables Mi $1.75, Ph $2.50. PB 99442

Research reported was designed to provide information on the linearity of operator performance in a direct tracking situation by determining the extent to which the responses of the operator-apparatus combination to superimposed inputs conform to the responses of a linear system to such inputs. Subjects tracted a spot which made step-function movements away from and back to a center position. Four different applitudes of displacement were used. The time interval between members of each pair of opposed steps was varied so that both uncomplicated reponses to single steps and overlapped responses were obtained. Contract W-33-038-ac-13968. AAF TR 5911.

PSYCHOLOGICAL ASPECTS OF EQUIPMENT DESIGN, by Paul M. Fitts. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Aug 1949. 108p photos, diagrs, graphs, tables Mi $4.50, Ph $13.75. PB 99030

This is a systematic review of psychological facts and experimental results of significance for human engineering. The data are drawn from psychology, anthropology, biophysics, engineering, and many other sources. It is written primarily for research workers and graduate students in general and applied experimental psychology. AAF TR 5829.

RUBBER AND RUBBER PRODUCTS

GRAPHS, DRAWINGS AND FERRO-PRINTS OF TYRE TESTS AND TESTING EQUIPMENT. I. G. Farbenindustrie A. G., Schkopau, Ger. 1937-1943. 214f drawings, graphs Mi $7.75, Enl Pr $28.75. PB 99936

1. Rubber, Buna - Tests 2. Tires, Rubber - Synthetic - Tests 3. Micro BIOS FD 2412/47, Frames 1-212.

Includes English abstract. Abstract available as PB 99936s. 1p. Mi $1.25, Ph $1.25.

INSTRUCTIONS FOR LABORATORY TESTING OF IGELIT PCU. I. G. Farbenindustrie A. G., Schkopau, Ger. 1940-1943. 42f photo, diagrs, graphs, tables Mi $2.50, Ph $7.50. PB 99935

1. Igelit PCU (Trade name) 2. Micro BIOS FD 2367/47, Frames 1-39.

Includes English abstract. Abstract available as PB 99935s. 2p. Mi $1.25, Ph $1.25.

PRODUCTION OF NUMBERED BUNA. I. G. Farbenindustrie A. G., Schkopau, Ger. 39f tables (Text in German) Mi $2.25, Enl Pr $6.25. PB 99934
1. Rubber, Buna - Production - Germany 2. Buna 85 (Trade name) 3. Buna 85C (Trade name) 4. Plastikator 32 (Trade name) 5. Micro BIOS FD 2255/47, Frames 1-38.
Includes English abstract. Abstract available as PB 99934s. 1p. Mi $1.25, Ph $1.25.

STRUCTURAL ENGINEERING

COMPRESSIVE STRENGTH OF FLANGES, by Elbridge Z. Stowell. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Jan 1950. 41p photo, drawings, graphs, table Mi $2.50, Ph $6.25. PB 99984
The maximum compressive stress carried by a hinged flange is computed from a deformation theory of plasticity combined with the theory for finite deflections for this structure. NACA TN 2020.

EXTRAPOLATION OF SHORT TIME STRESS RUPTURE DATA, by Nicholas J. Grant and A. G. Bucklin. U. S. Bureau of Ships. Oct 1949. 44p photos, graphs Mi $2.50, Ph $6.25. PB 99653
The authors have presented a method based on the prediction of metallurgical changes as indicated by breaks in the curves of a plot of log stress to rupture vs log rupture time. Contract NObs-25391 Task Order #6. NAVSHIPS RM 3-49.

TEST OF SHEAR BEAMS MODEL 344& 345, by Wm. T. Thomson. Boeing Aircraft Co., Seattle, Wash. Oct 1941. 38p photos, graphs Mi $2.25, Ph $5.00. PB 99451
Several tests were performed in which the following items are recorded: beam deflection, stress in the BAC 1496-99 stiffener. lateral deflection of the beam due to lateral pressure, amount of web wrinkling, lateral deflection of stiffeners, permanent set at various loads, and ultimate strength of the beam. The section properties of the test specimen are given, together with information regarding the two sides of the beam. A summary of all test results is tabulated. USAF Contract no. W-535-ac-15429.

TRANSPORTATION EQUIPMENT

Aeronautics

AERONAUTISCHE VERSUCHSANANSTALT GOETTINGEN, by A.M.O. Smith. Aug 1945. 7p Mi $1.25, Ph $1.25. PB 97043
1. Aerodynamische Versuchsanstalt Göttingen, E.V., Göttingen, Ger. 2. CIOS XXXII-40, Item 25.

COMBINED INDEX TO THE TECHNICAL REPORTS OF THE AERONAUTICAL RESEARCH COMMITTEE, 1919-20 TO 1928-49, by T. G. Hartshorne and T.J. Twohig,

TK 526 G7 R35
Have 1919/20 and 1928/29 (1939)

comp. Aug 1939. 216p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $3.65. ARC RM 1700. PB 81488

KONDENSATION IN ÜBERSCHALLDÜSEN. (CONDENSATION IN SUPERSONIC NOZZLES), by Klaus Oswatitsch. Lilienthal-Gesellschaft für Luftfahrtforschung. Berlin. Oct 1941. 4p (Text in German and English) Mi $1.25, Ph $1.25. PB 98846
Condensation in supersonic nozzles, and its effect on the flow through the nozzles, is discussed. The application of the data in the two articles by the same author is proposed, which will give calculations and the entire scope of this subject. They are the ZWB report by Oswatitsch, "Fog Formations in Wind Tunnels and Their Effect on Model Tests", and "Condensation Phenomena in Supersonic Nozzles" which appeared in the February 1942 issue of the Journal for Applied Mathematics and Mechanics ("Zeitschrift fuer angewandte Mathematik und Mechanik"). German text will not reproduce well. AAF T-2 T/4691.

Aircraft

ARM RESTS ON EJECTION SEATS, by H. E. Savely and W. H. Ames. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Jan 1948. 6p table Mi $1.25, Ph $1.25. PB 89989
1. Seats, Airplane - Ejector 2. AAF TSEAA MR 695-66G.

CABIN COOLING IN HIGH SPEED FLIGHT, by P. J. Bateman. Gt. Brit. Ministry of Supply. Aeronautical Research Council. 1949. 11p graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90. PB 99556
This report considers principally the case of a single-seat aircraft at speeds at a Mach number of 1.5, which is no means the highest conjectured speed at the present time, and points out some of the difficulties of cooling due to the high temperature of the sink to which the extracted heat has to be dissipated. ARC RM 2329. ARC TR 10072.

COMPARISON BETWEEN THEORETICAL AND EXPERIMENTAL LIFT DISTRIBUTIONS OF PLANE DELTA WINGS AT LOW SPEEDS AND ZERO YAW, by S. B. Berndt and K. Orlik-Rückemann. Sweden. Kungl. Tekniska Högskolan. Institutionen för Flygteknik. 1949. 25p diagrs, graphs, tables Mi $2.00, Ph $3.75. PB 99824
A calculation has been made of the lift distribution at yaw and low speeds on six plane delta wings of aspect ratio between $0,^5$ and 2,5. The planform of all wings was basically triangular. The most import deviation can be attributed to the influence of the finite thickness of the wing, which is neglected in the present theory. KTH AERO TN 10.

DAMPING IN PITCH AND ROLL OF TRIANGULAR WINGS AT SUPERSONIC SPEEDS, by Clinton E. Brown and Mac C. Adams. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 1948. 13p photos, graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 99875
The elementary "supersonic" source solution of the linearized equation of motion is used to find the potential function of a line of doublets, and the flows are obtained by surface distributions of these doublet lines. NACA 892.

DISCUSSION OF FLOORINGS PROPOSED FOR C-82 AIRPLANES, by W. E. Parnell. Fairchild Engine and Airplane Corp. Aircraft Division, Hagerstown, Md. Aug 1944.

18p photos, drawings Mi $1.75, Ph $2.50. PB 99775

The physical characteristics of several proposed floorings for the cargo compartment of the C-82 cargo airplane are described, pointing out weight, cost, and service life expectancy of each type. Photographs are included of the proposed floorings and of the various methods of testing. Laboratory memorandum report no. 23-W.

DREIKOMPONENTENMESSUNGEN AN EINEM RECHTECKFLÜGEL MIT MOTORGONDOL UND SPALTKLAPPE. (THREE-COMPONENT SURVEY OF A RECTANGULAR WING WITH MOTOR GONDOLA AND SPLIT FLAPS), by O. Meier. Feb 1941. 17f graphs, tables (Text in German) Mi $1.75, Enl Pr $3.75. PB 100088

1. Wings, Rectangular - Measurements - Germany 2. Flaps, Split - Germany 3. Deutsche Versuchsstation für Luftfahrt E.V., Institut für Aerodynamik, Berlin 4. Micro ZWB FB 1360 5. AAF T-2 Micro Reel 2046, Frame 557.

EFFECT OF HORIZONTAL TAIL ON LOW-SPEED STATIC LATERAL STABILITY CHARACTERISTICS OF A MODEL HAVING 45° SWEPTBACK WING AND TAIL SURFACES, by Jack D. Brewer and Jacob H. Lichtenstein. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Jan 1950. 46p photos, drawings, graphs, tables Mi $2.50, Ph $6.25. PB 99645

Contains wind-tunnel results of the effect of change in horizontal-tail size and location on the static-lateral-stability parameters for a complete model with wing and tail surfaces having the quarter-chord line swept back 45°. Charts applicable to the design of similar tail configurations are included. NACA TN 2010.

EXPERIMENTAL DETERMINATION OF PRESSURE DISTRIBUTIONS AND TRANSITION LINES OF PLANE DELTA WINGS AT LOW SPEEDS AND ZERO YAW, by K. Orlik-Rückemann. Sweden. Kungl. Tekniska Högskolan. Institutionen för Flygteknik. 1948. 49p photos, diagrs, graphs, tables Mi $2.50, Ph $6.25. PB 99453

The tests have been made to ascertain the pressure distributions and lines of transition at zero angle of yaw, low subsonic speeds. The tests are a part of a series of tests regarding delta wings, which have been carried at the Division of Aeronautics, Royal Institute of Technology and in which three-component measurements and flow investigations (1) and theoretical determination of pressure distributions (2) are included. KTH aero TN^3.

FLIGHT DETERMINATION OF THE TOLERABLE RANGE OF EFFECTIVE DIHEDRAL ON A CONVENTIONAL FIGHTER AIRPLANE, by Charles J. Liddell, Jr., and others. Aug 1949. 25p photo, drawings, graphs, table Mi $2.00, Ph $3.75. PB 98330

A conventional fighter airplane was equipped with a special device for varying the effective dihedral in flight. A survey of pilots' opinions was made to determine which values of effective dihedral were intolerable. The relation between the findings and the present Air Force-Navy stability and control specifications is discussed. NACA TN 1936.

FLOATING CHARACTERISTICS OF RUDDERS AND ELEVATORS IN SPINNING ATTITUDES AS DETERMINED FROM HINGE-MOMENT-COEFFICIENT DATA WITH APPLICATION TO PERSONAL-OWNER-TYPE AIRPLANES, by William Bihrle, Jr. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Jan 1950. 64p photos,

drawings, graphs, tables Mi $3.00, Ph $8.75. PB 99980

The floating characteristics, determined from a study of available hinge-moment-coefficient data, of various types of rudders and elevators in spinning attitudes are presented. The study is made primarily with regard to obtaining spin recovery upon releasing the controls of a personal-owner-type airplane. NACA TN 2016.

INFLUENCE OF WING FLEXIBILITY ON FORCE-TIME RELATION IN SHOCK STRUT FOLLOWING VERTICAL LANDING IMPACT, by A. E. McPherson, J. Evans, Jr., and Samuel Levy. U. S. National Bureau of Standards. Nov 1949. 38p Mi $2.25, Ph $5.00. PB 99525

Tests were conducted to determine the force developed in a shock strut as a function of the flexibility of the attached wing structure. An analysis of the effect of wing flexibility on the impact force was also carried out. A formula, based on the analysis, is given for the ratio of impact force with a flexible wing to impact force with a rigid wing. NACA TN 1995.

INVESTIGATION OF AIRCRAFT ACCIDENTS INVOLVING AIRFRAME FAILURE, by J.B.B. Owen and F. Grinsted. Gt. Brit. Ministry of Supply. Aeronautical Research Council. 1949. 65p photos, drawings, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $3.50. PB 99822

This report describes how accident wreckage may be examined and approximate flight trajectories of wreckage pieces drawn to reveal the height at which disintegration occurred. Reviews of the wartime accident histories of a few important types of aircraft are given. ARC RM 2300.

LIFTING-SURFACE-THEORY ASPECT-RATIO CORRECTIONS TO THE LIFT AND HINGE-MOMENT PARAMETERS FOR FULL-SPAN ELEVATORS ON HORIZONTAL TAIL SURFACES, by Robert S. Swanson and Stewart M. Crandall. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 1948. 21p graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 99990

A limited number of lifting-surface-theory solutions for wings with chordwise loadings resulting from angle of attack, parabolic-arc camber, and flap deflection are now available. Comparison of experimental finite span and section values and of the estimated values of the lift and hinge-moment parameters for three horizontal tail surfaces was made to provide an experimental verification of the method suggested. NACA 911.

LINEARIZED LIFTING-SURFACE THEORY FOR SWEPT-BACK WINGS WITH SLENDER PLAN FORMS, by Harvard Lomax and Max A. Heaslet. U. S. Ames Aeronautical Laboratory, Moffett Field, Calif. Dec 1949. 40p diagrs, graphs Mi $2.25, Ph $5.00. PB 99856

The spanwise and chordwise distribution of loading, the lift, and the induced drag of a swept-back wing of slender plan form are developed by means of linearized lifting-surface theory. The results are applicable for all free-stream Mach numbers. NACA TN 1992.

LINEARIZED SUPERSONIC THEORY OF CONICAL WINGS, by P. A. Lagerstrom. California Institute of Technology, Pasadena, Calif. Jet Propulsion Laboratory. Jan 1950. 168p diagrs, table Mi $6.25, Ph $21.25. PB 99985

Some fundamental properties of linearized supersonic flows are outlined, and the concepts of conical flow and conical wings introduced by Busemann are clarified

and developed. Various basic conical solutions are applied to flat symmetrical wings. Effects of angle of attack and thickness are separated to define the flow field near wings of simple plan forms and profile. Solutions of downwash and sidewash behind three-dimensional wings of constant lift distribution are given. The mixed type wing is considered where a region of constant lift lies adjacent to a flat plate. A case applicable to control surfaces is also studied where wings consist of adjacent flat regions at different angles of attack. Progress report no. 4-36. U. S. Army Ordnance Dept. Contract no. W04-200-ORD-455. NACA TN 1685.

LOAD DISTRIBUTION DUE TO SIDESLIP ON TRIANGULAR, TRAPEZOIDAL, AND RELATED PLAN FORMS IN SUPERSONIC FLOW, by Arthur L. Jones and Alberta Alksne. U. S. Ames Aeronautical Laboratory, Moffett Field, Calif. Jan 1950. 36p photos, graphs Mi $2.25, Ph $5.00. PB 99839

Expressions are presented for the load distribution on a representative group of plan forms in sideslip at supersonic speeds. These expressions were obtained by the application of lifting-surface theories based on the linearized equation for compressible flow. Sketches of the load distributions are included. NACA TN 2007.

A METHOD OF ESTIMATING THE EFFECT OF AEROELASTIC DISTORTION OF A SWEPT-BACK WING ON STABILITY AND CONTROL DERIVATIVES, by H. M. Lyon. Gt. Brit. Ministry of Supply. Aeronautical Research Council. 1949. 10p diagrs. Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.70. PB 99486

On high-speed aircraft, using large angles of sweep-back to delay the onset of the shock stall, aero-elastic distortion and its effects on stability and control is likely to be one of the most important problems. A method of estimating aero-elastic effects on the aerodynamic derivatives is proposed as a basis for discussion and further investigation. ARC RM 2331. ARC TR 10,024.

PNEUMATIC CATAPULTS FOR SIMULATED SEAT EJECTION TESTS, by Vincent Mazza and H. E. Savely. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Sep 1947. 15p photos, graphs Mi $1.75, Ph $2.50. PB 89988

1. Seats, Airplane - Ejector 2. Catapults, Pneumatic 3. AAF TSEAA MR 695-66F.

SIMPLIFIED METHOD OF ELASTIC-STABILITY ANALYSIS FOR THIN CYLINDRICAL SHELLS, by S. B. Batdorf. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 1947. 29p photos, diagrs, graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.20. PB 99635

This paper develops a new method for determining the buckling stresses of cylindrical shells under various loading conditions. For convenience of exposition, it is divided into two parts. In part I, the equation for the equilibrium of cylindrical shells to find the critical stresses of cylinders in torsion is applied to find critical stresses of cylinders with simply supported edges under other loading conditions. NACA 874.

SOME EFFECTS OF DENSITY AND MACH NUMBER ON THE FLUTTER SPEED OF TWO UNIFORM WINGS, by George E. Castile and Robert W. Herr. U. S. Langley Aeronautical Laboratory, Langley Air Force Base, Va. Dec 1949. 20p drawings, graphs, tables Mi $1.75, Ph $2.50. PB 99576

Presents the results of sixty-six experimental flutter tests made on two uniform,

cantilever wing models. Both models were fluttered over wide ranges of density, Mach number, and wave length. The data have been corrected for compressibility and wave-length effects and plotted as a function of density. NACA TN 1989.

SPANWISE LOADING FOR WINGS AND CONTROL SURFACES OF LOW ASPECT RATIO, by John DeYoung. U. S. Ames Aeronautical Laboratory, Moffett Field, Calif. Jan 1950. 36p diagrs, graphs, table Mi $2.25, Ph $5.00. PB 99872

A two-dimensional fore and aft vortex sheet is used to predict the spanwise loading of low-aspect-ratio wings or moderate-aspect-ratio wings at the speed of sound. The treatment is limited to plan forms having all points of the trailing edge at or behind the upstream line of maximum wing span. Spanwise loadings that include the additional loading due to angle of attack, that due to rolling, basic loading due to twist, and that due to control surfaces of low aspect ratio are found to be independent of plan form for the wings considered. NACA TN 2011.

STRESS ANALYSIS. Consolidated Vultee Aircraft Corp., San Diego Division, San Diego, Calif. Aug 1944. 383p graphs, tables Mi $9.00, Ph $48.75. PB 98518

Formulae and procedures are given for computing section properties and stresses of aircraft structural components. Critical column load formulae are plotted for various materials, and methods for obtaining the ultimate compressive strength of structural shapes are shown. Bending stress and deflection formulae are given for simple and continuous beams, and beam column coefficients are derived. Formulae for torsional deformation and stress, for computing the transverse and longitudinal shear stresses, and for the analysis of bolted or riveted joints are given, and methods of solving stress concentration problems are described. The strength of gears, strings, pulleys, and bearings and the properties of materials are discussed.

STRUCTURAL TESTS: HORIZONTAL TAIL SURFACES, DOUGLAS C-74 AIRPLANE, by Fred J. Peck, Jr. U. S. Air Materiel Command. Engineering Division. Aircraft Laboratory, Wright Field, Dayton, Ohio. Nov 1947. 3p Mi $1.25, Ph $1.25. PB 99857

Destruction tests were conducted on the horizontal tail surfaces of the Douglas C-74 airplane. The stabilizer in the balancing condition, the elevator and the stabilizer inboard hinge in the pull-up condition, the flying tabs and the trim tabs with the push-pull tube in both tension and compression, all were structurally capable of supporting ultimate loads of more than 100%. The results show that no structural changes are required. AAF TSEAC 12-4162-28-38.

STUDY OF THE USE OF EXPERIMENTAL STABILITY DERIVATIVES IN THE CALCULATION OF THE LATERAL DISTURBED MOTIONS OF A SWEPT-WING AIRPLANE AND COMPARISON WITH FLIGHT RESULTS, by John D. Bird and Byron M. Jaquet. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Jan 1950. 74p photos, drawings, graphs, tables Mi $3.50, Ph $10.00. PB 99983

Experimentally determined lateral-stability derivatives of a swept-wing airplane are presented to show effects of slots, flaps, propeller, and ventral fins and are used in calculations of a number of lateral disturbed motions. The calculated motions are compared with those obtained in flight tests to determine the applicability of the experimental stability derivatives. The effects of nonlinearity of some of the aerodynamic forces with side-slip are shown by a few supplemental calculations. NACA TN 2013.

STUDY ON PULL-OUT WHEN LANDING, by Eiichi Muto. Kawasaki Aircraft Mfg. Co., Nagoya, Japan. Aug 1941. 42p graphs (Text in Japanese) Mi $2.50, Ph $6.25 PB 99962

A study of the landing pull-out operation is presented in which the Runge-Kutta calculation method is employed. It is shown that the operation studied starts with steady glide at constant angle of incidence. Therefore, the initial conditions can be determined by use of the general formula for steady glide. Subsequently, formulas defining the flight path are given in which variations in speed and direction are taken into consideration. Abstract and summary in English.

SUBSONIC FLOW OVER THIN OBLIQUE AIRFOILS AT ZERO LIFT, by Robert T. Jones. U. S. Ames Aeronautical Laboratory, Moffett Field, Calif. 1948. 7p graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 99646

The present report extends calculations to subsonic speeds. It is found that the flows can be obtained by the superposition of elementary conical flow fields. In the case of the swept-back wing the pressure distributions remain qualitatively similar at subsonic and supersonic speeds. NACA 902.

SUMMARY OF TESTS CONDUCTED ON FAIRCHILD DESIGNED METAL FACED CARGO FLOORING, MODEL C-82A, by W. E. Parnell. Fairchild Engine and Airplane Corp., Fairchild Aircraft Div., Hagerstown, Md. Apr 1945. 85p photos, tables Mi $3.75, Ph $11.25. PB 99956

The results of tests conducted on the flooring developed for the C-82A cargo airplane are discussed. Impact tests, employing both a simulated softwood box corner backed up by a weight of 200-lb and a 365-lb gasoline drum, together with rolling load tests simulating the action of an engine-cradle wheel, were made on the panels. Results are summarized in detail for adhesive studies, static bending, crushing tests, impact tests, and tests on hold-down fittings. Photographs are included of the various panels tested, and of the method of testing. Engineering report no. R-78-066.

TAILLESS VS. CONVENTIONAL DESIGNS, by L. E. Root. U. S. Office of Naval Research, Washington, D. C. n.d. 5p Mi $1.25, Ph $1.25. PB 99944

Tailless airplanes are compared with airplanes of conventional design and with swept-back wings. Table of related reference reports is included.

THEORETICAL INVESTIGATION OF HYDRODYNAMIC IMPACT LOADS ON SCALLOPED-BOTTOM SEAPLANES AND COMPARISONS WITH EXPERIMENT, by Benjamin Milwitzky. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Apr 1947. 20p photo, diagrs, graphs, table Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 99564

The analysis treats vertical impact at zero trim in addition to the more general problem of the step impact of a seaplane at positive trim where the flight path is oblique to the keep and to the water surface. Also considered are the transformations required to represent impacts into waves. The analysis, which is equally applicable to floats having cross sections of any shape, considers that the flow about an immersing planing bottom occurs largely in transverse flow planes which are normal to the keel. NACA 867.

THREE COMPONENT MEASUREMENT AND FLOW INVESTIGATION OF PLANE DELTA WINGS AT LOW SPEEDS AND ZERO YAW, by Sune B. Berndt. Sweden.

Kungl. Tekniska Högskolan. Institutionen för Flygteknik. Jun 1948. 19p photos, diagrs, graphs, tables Mi $1.75, Ph $2.50. PB 99454

Six plane delta wings, three of which are triangular and three tapered with ratio 0,3. The aspect ratio of the wings is between 0,5 and 2,5. At small angles of attack the experimental values of lift and pitching moment are in agreement with calculations based on linear wing theory. At greater angles of attack a non-linearity is observed, which rapidly increases with decreasing aspect ratio, and which may be due to a backwards movement of the lift distribution. KTH aero TN4.

USE OF SOURCE-SINK AND DOUBLET DISTRIBUTIONS EXTENDED TO THE SOLUTION OF BOUNDARY-VALUE PROBLEMS IN SUPERSONIC FLOW, by Max A. Heaslet and Harvard Lomax. U. S. Ames Aeronautical Laboratory, Moffett Field, Calif. 1948. 19p photos, diagrs, graphs Available from the Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 99636

The concept of the "finite part" of an integral is introduced and used in the calculation of the improper integrals associated with supersonic doublet distributions. NACA 900.

Instruments

EXPERIMENTAL STUDY OF THE EFFECTIVENESS WITH WHICH NOVICES CAN INTERPRET A LOCALIZER-GLIDEPATH APPROACH INDICATOR, by Roger Brown Loucks. Washington. University. Dept. of Psychology, Seattle, Wash. Oct 1949. 17p photo, diagrs, graphs, tables Mi $1.75, Ph $2.50. PB 99639

The conventional instrument was found to be very inferior to the modified type of indicator. Similar findings from other studies in this series of investigations clearly indicate that the minimal amount of misinterpretation would be insured if both the needles of the conventional Approach Indicator were reversed in their action. A proposed design for such an indicator is described. USAF Contract no. W33-038-ac-15230. AAF TR 5959.

KURSSTEUEREINBAU IN HO 229 (INSTALLATION OF AUTOMATIC PILOT IN HO 229). Gothaer Waggonfabrik A. G., Gotha, Ger. Oct 1944. 2f (Text in German) Mi $1.25, Enl Pr $2.50. PB 100090

1. Ho 229 (Airplane) 2. Pilots, Automatic - Germany 3. AAF T-2 Micro Reel 2028, Frame 503.

THEORETICAL INVESTIGATION OF THE EFFECT ON THE LATERAL OSCILLATIONS OF AN AIRPLANE OF AN AUTOMATIC CONTROL SENSITIVE TO YAWING ACCELERATIONS, by Arnold R. Beckhardt. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Jan 1950. 27p graphs, tables Mi $2.00, Ph $3.75. PB 99877

This paper contains results of a theoretical investigation to determine the effect of varying the time lag and the effect of varying the ratio of rudder deflection to yawing acceleration in an automatic control sensitive to yawing accelerations on the damping produced by this type of control. NACA TN 2006.

Engines and Propellers

ANNULAR-JET EJECTORS, by Elliott G. Reid. Stanford University. Nov 1949. 94p photos, graphs, tables Mi $4.25, Ph $12.50. PB 99503

Model tests show that annular-jet ejectors induce approximately the same rates of secondary flow as do comparable central-jet types when both have nondivergent mixing tubes. When divergent mixing tubes are used, the flow rates for the annular type increase much more than do those for the conventional one. NACA TM 1949.

ENGINE TEST OF FRACTURED SPA-3 HOLLOW STEEL PROPELLER BLADES, by M. C. Green. Jul 1946. 6p photos Mi $1.25, Ph $1.25. PB 98337

Engine tests were made of fractured SPA-3 hollow steel propeller blades to determine the rate of growth of visible cracks attributed to faulty internal finishing. Four blades, which had 2- or 3-in. cracks after static vibration, were run 18 hours with only a slight growth of cracks. After 28 hours, a 1/4-in. growth was found in one blade, and a growth of 3 in. in 10 hours was observed in a blade which had been cracked 8 in. in service. AAF T-2 TR 5508.

ENTWICKLUNG DER MOTORBAUMÜSTERS BMW 803 (DESCRIPTION AND INSTALLATION DIAGRAM OF BMW 803 ENGINE). Bayerische Motoren Werke A. G., Flugmotorenbau G.m.b.H., Munich, Ger. n.d. 60f drawings, graphs (Text in German) Mi $2.75, Enl Pr $8.75. PB 100092

1. BMW 803 (Aircraft engine) 2. Engines, Aircraft - Germany 3. Engines, Aircraft - Installation - Germany 4. AAF T-2 Micro Reel 2028, Frame 442.

EXPERIMENTAL AND THEORETICAL ANALYSIS OF JET PROPULSION OBTAINABLE FROM EXHAUST GASES OF AIRCRAFT ENGINES, by R. H. Miller. McDonnell Aircraft Corporation. Fngineering Dept., St. Louis, Mo. Mar 1941. 96p photos, diagrs, graphs Mi $4.25, Ph $12.50. PB 99774

The basic conception underlying exhaust jet propulsion is analyzed with particular consideration of the heat and friction losses to be expected. By collecting the exhaust gases in a manifold and causing them to expand through a nozzle, some of the heat energy can be converted into kinetic energy. These conditions are examined both analytically and from test data obtained by experiments on hot gases in order to determine the increase in thrust. A comparison is made of aircraft performance with and without exhaust thrust. Engineering report no. 39.

JET ENGINE SOUND SPECTRA, by Donald H. Eldredge, Jr., and Horace O. Parrack. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. Jun 1949. 21p graph, tables Mi $2.00, Ph $3.00. PB 99413

1. Jet engines, Turbo-jet - Sound 2. Spectra, Acoustic 3. J-33 (Jet engine) 4. J-34 (Jet engine) 5. J-35 (Jet engine) 6. AAF TR 5827.

ME 262 MIT 2XJUMO 109.004-B_2. VORBEMERKUNGEN ZU DEN FLUGLEISTUNGEN (PRELIMINARY REPORT ON THE FLIGHT CHARACTERISTICS OF THE ME 262 WITH THE JUMO 109-004-B_2 INSTALLATION). Oberbayerische Forschungsanstalt, Oberammergau, Ger. Oct 1944. 22f drawings, tables (Text in German) Mi $2.00, Enl Pr $5.00. PB 100085

1. Me 262 (Airplane) 2. Jumo 109-004-B2 (Jet propulsion engine) 3. Air lanes - Flight characteristics - Germany 4. Airplanes, Jet propelled - Performance - Germany 5. Jet engines - Germany 6. AAF Micro Reel 2018, Frame 335.

MOTORZUBEHÖR- UND ANSCHUSSLISTE ZU TL-MOTOR 109-003-A1 ANGEBAUTE GERÄTE (LIST OF AUXILIARY EQUIPMENT AND ACCESSORIES FOR THE TL JET DRIVING GEAR 109-003 AO). Bayerische Motoren Werke A. G. Apr 1943.

4f tables only Mi $1.25, Enl Pr $2.50. PB 100087
1. Jet engines, Turbo jet - Accessories - Germany 2. Jet propulsion - Germany 3. 109-003-A1 (Jet driving) 4. 109-003-A1 (Jet driving gear) 5. BMW 003 6. AAF Micro Reel 2028, Frame 574.

MOULDING AND CASTING OF PROPELLERS IN THE NETHERLANDS MODEL BASIN (VORMAN EN GIETEN VAN SCHROEVEN IN HET NEDERLANDSCH SCHEEPSBOUWKUNDIG PROEFSTATION), BY A. LUTEYN. TRANSLATED BY F. A. RAVEN. Aug 1949. 33p drawings, graph Mi $2.25, Ph $5.00. STS 66. PB 99007

PROPELLER FLIGHT INVESTIGATION TO DETERMINE THE EFFECTS OF BLADE LOADING, by Jerome B. Hammack and A. W. Vogeley. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Jan 1950. 37p photo, graphs Mi $2.25, Ph $5.00. PB 99989

The effect of increasing power loading is presented for a conventional propeller blade at forward Mach numbers up to 0.7. At high speeds, the power loading per blade was increased from a blade power coefficient of 0.06 to 0.16, with a resultant increase in propeller efficiency. This increase was shown to be caused primarily by reduced profile losses. In climbs, increases in blade power loading reduced propeller efficiency. NACA TN 2022.

THERMODYNAMIC STUDY OF THE TURBO JET ENGINE, by Benjamin Pinkel and Irving M. Karp. U. S. Aircraft Engine Research Laboratory, Cleveland, Ohio. 1947. 29p graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.20. PB 99647

Charts are presented for computing thrust, fuel consumption and other performance values of a turbojet engine for any given set of operating conditions and component efficiencies. The effects of pressure losses in the inlet duct and the combustion chamber, of variation in physical properties of the gas as it passes through the system, of reheating of the gas due to turbine losses and change in mass flow by the addition of fuel are included. NACA 891.

TRIEBWERK (RESEARCH ON AIRCRAFT ENGINES). Germany. Reichsluftfahrtministerium. Dec 1940. 15p (Text in German and English) Mi $1.75, Ph $2.50. PB 99953

A discussion is given of the research work done on the development of aircraft engines, superchargers, and a magneto for ignition at high altitudes and increasing the performance of aircraft engines. A hollow blade turbine was developed. Cooling of this turbine is accomplished by the blowing of air through the hollow blades, provided with cooling ribs. Three different ventilating air supply installations were developed. A comprehensive study was made of fuels. A process was developed for the rapid determination of the lead content of fuels. AAF T-2 T/4811.

Aerodynamics

APPLICATION OF THE LAPLACE TRANSFORMATION TO THE SOLUTION OF THE LATERAL AND LONGITUDINAL STABILITY EQUATIONS, by G. A. Mokrzycki. Ryan Aeronautical Company, Lindbergh Field, San Diego, Calif. Jan 1950. 59p drawings, tables Mi $2.75, Ph $7.50. PB 99840

The expressions for the time history of the motion in response to a sinusoidal control motion are derived for the general case in which the initial conditions,

initial displacements and initial velocities, are assumed different from zero. Some illustrative examples of the application of the Laplace transform to ordinary linear differential equations with constant coefficients and a numerical example of a specific problem are presented in appendixes. NACA TN 2002.

APPROXIMATE METHOD FOR DETERMINING THE INCOMPRESSIBLE, IRROTATIONAL FLOW AROUND A SYMMETRICAL WING SECTION, by S. B. Berndt. Sweden. Kungl. Tekniska Högskolan. Institutionen för Flygteknik. 1949. 18p drawings, tables Mi $1.75, Ph $2.50. PB 99823
1. Flow, Incompressible - Measurements - Sweden. 2. KTH AERO TN 7.

DATA ON SHAPE AND LOCATION OF DETACHED SHOCK WAVES ON CONES AND SPHERES, by Juergen W. Heberle, George P. Wood, and Paul B. Gooderum. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Jan 1950. 42p photos, graphs, tables Mi $2.50, Ph $6.25. PB 99871

Accurate experimental data are given on the shape and the location of detached shock waves on cones and spheres at Mach numbers from 1.17 to 1.81. The data are correlated to obtain equations that describe the shock waves. The experimental data on shock waves are compared with theory. NACA TN 2000.

DESIGN, OPERATION, AND USES OF THE WATER CHANNEL AS AN INSTRUMENT FOR THE INVESTIGATION OF COMPRESSIBLE-FLOW PHENOMENA, by Clarence W. Matthews. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Jan 1950. 26p drawings, graphs Mi $2.00, Ph $3.75. PB 99826

The general features required for the design of a water channel are discussed. Suggestions are made concerning types of auxiliary equipment. An evaluation is made of the inherent limitations involved in the application of the hydraulic analogy. NACA TN 2008.

THE FUNDAMENTAL RESEARCH NECESSARY FOR THE EVALUATION OF COOLING REQUIREMENT OF SUPERSONIC AIRCRAFT AND MISSILES, by D. M. Patterson. Dec 1946. 17p Mi $1.75, Ph $2.50. PB 98339

Factors are outlined that must be considered in connection with providing the necessary environmental conditions within supersonic aircraft, in order that personnel, equipment, and structure will perform satisfactorily. The general order of magnitude of the cooling problems for maintaining the safe operation of high-speed aircraft and missiles is illustrated by a curve of the boundary-layer temperatures of air near the surface of the skin. The principal methods of refrigeration adaptable to supersonic aircraft and missiles are liquid cooling, evaporative cooling, air cycle refrigeration, vapor cycle refrigeration, and storage cooling.

REFLEXIONS D'ONDES PLANES ET SPHERIQUES. (REFLECTIONS OF PLANE AND SPHERICAL WAVES), by Karl Heinz. Laboratoire d'Etudes Balistiques, Saint Louis, France. Aug 1947. 17f diagr (Text in French) Mi $1.75, Enl Pr $3.75. PB 98900

The reflection patterns of plane and spherical waves are applied to the dynamics of steady gas flow. The reflection of a plane wave is calculated under several simplifying assumptions. English digest only. French text is illegible.

STABILITY OF THE LAMINAR BOUNDARY LAYER IN A COMPRESSIBLE FLUID, by Lester Lees. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 1947.

52p graphs, tables Available from Supt. of Documents, U. S. Government Printing Office, Washington 25 D. C. $.30. PB 99837

A comparison between this conclusion and experimental investigations of the effect of surface heating on transition at low speeds show that the results of the present paper give the proper direction of this effect. The extension of the results of the stability analysis to laminar boundry layer gas flows with a pressure gradient in the direction of the free stream is discussed. NACA 876.

THEORETICAL CALCULATIONS OF THE SUPERSONIC PRESSURE DISTRIBUTION AND WAVE DRAG FOR A LIMITED FAMILY OF TAPERED SWEPTBACK WINGS WITH SYMMETRICAL PARABOLIC ARC SECTIONS AT ZERO LIFT by Julian H. Kainer. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Jan 1950. 14p graphs Mi $1.75 Ph $2.50. PB 99131

The study of the supersonic pressure distribution and wave drag of sweptback wings at zero lift has been extended by means of linearized theory to include the combined effects of plan-form taper and curvature of profile. Comparisons have been made of the pressure distributions and the wave drag calculated by this exact linear solution with the results of an arbitrary simplified approximation based on formulas for untapered plan forms with symmetrical parabolic-arc sections. A comparison of the wing wave-drag coefficient has been made with the results obtained from formulas for geometrically similar sweptback tapered wings with rhombic sections modified by a profile-correction factor. NACA TN 2009.

ÜBER DAS ASYMPTOMISCHE VERHALTUNG DER LÖSUNGEN EINEN NICHTLINEAREN GEWÖHNLICHEN DIFFERENTIALGLEICHUNG 3. ORDNUNG (ON THE SYMPTOMIC BEHAVIOR OF THE SOLUTIONS OF A NON-LINEAR OR LINEAR DIFFERENTIAL EQUATION OF THE 3D ORDER), by R. Iglisch. Jun 1943. 33f graphs, tables (Text in German) Mi $2.25, Enl Pr $6.25. PB 100089

1. Boundary layer - Germany 2. Luftfahrtforschungsanstalt Hermann Göring. E.V., Braunschwig Ger. 3. Aerodynamicshes Institut Technische Hochschule Braunschwig Ger. 4. Micro ZWB FB 224 5. AAF T-2 Micro Reel 2028, Frame 505.

Some pages will not reproduce well.

WATER SUPPLY, SANITATION AND PUBLIC HEALTH

COMPOSITION OF SYNTHETIC SEA WATER. Metallgesellschaft A. G., Frankfort am Main Ger. 1943. 8f tables Mi $1.25 Enl Pr $2.50. PB 99922

1. Sea water, Synthetic - Germany 2. Micro BIOS FD 296/48 Frames 424-430.

REPORT OF THE WATER POLLUTION RESEARCH BOARD WITH THE REPORT OF THE DIRECTOR OF WATER POLLUTION RESEARCH FOR THE YEAR 1948. Gt. Brit. Dept. of Scientific and Industrial Research. Water Pollution Research Board. 1949. 61p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.35. PB 100037

The report presents accounts of the following research projects conducted during 1948: a) Softening of water by aeration; b) biological filtration; c) the treatment of waste waters from the processing of sisal, coffee, and grain, cider manufacture, pickling of steel; and d) the poluting effect of sewage and industrial wastes.

WATER SOFTENING; A REPORT. Gt. Brit. Ministry of Health. Central Advisory Water Committee. Water Softening Sub-Committee. 1949. 76p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.40. PB 100023

Whether it is desirable, and if so feasible that public water supplies should be softened in areas where there is a high degree of hardness; the effect of softening on the finances of water undertakings and the resultant cost to consumers, as compared with economics in other directions; the degree of hardness to which water softening is desirable and the effect on trade and industrial untertakings if softened water is supplied.

MISCELLANEOUS

EXPERIMENTAL COMPARISON OF THE RELATIVE EFFECTIVENESS WITH WHICH TWO TYPES OF MAP READING PROCEDURES CAN BE UTILIZED BY NOVICES, by Roger Brown Loucks. Washington. University. Dept. of Psychology. Oct 1949. 13p photo, diagrs Mi $1.75, Ph $2.50. PB 99874

1. Map reading 2. AAF TR 5963.

USAF Contract no. W33-038-ac-15230. Expenditure Order no. 694-19.. under the direction of Walter F. Grether.

TECHNISCHE BERICHTE (TECHNICAL REPORTS). GERMANY. ZENTRALE FÜR WISSENSCHAFTLICHES BERICHTWESEN DER LUFTFAHRTFORSCHUNG. VOL. 10 NO. 10. Oct 1943. 50f photos, diagrs (Text in German) Mi $2.50, Enl Pr $7.50.

1. Paris. Bassin de Giration d'Essais 2. Cables, High frequency - Resistance - Germany 3. Leaded bronze - Germany 4. Metals - Hardening - Germany 5. Model basins - France 6. Remote control 7. Micro BIOS FD 1235/49, Frames 299-345.

Abstract in English.

PATENTS

Chemicals and Allied Products

MODIFIED PROCESS FOR PRODUCING VAT DYES OF GREAT DEPTH OF COLOR AND HIGH ALKALI FASTNESS. I. G. Farbenindustrie A. G., Frankfurt am Main, Ger. Feb 1949. 9p Available from Research Information Services, 509 Fifth Ave., New York 17, N. Y. $19.75. PB 99602

1. Dyes, Vat - Patents - Germany 2. GP 717352.

Translation of DRP 717352. Report 3529.

PATENT APPLICATIONS RELATING TO FRACTIONATION PROCESSES. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 1940. 20f (Text in German) Mi $1.75, Enl Pr $3.75. PB 100053

1. Fatty acids, Synthetic - Fractionation - Patents - Germany 2. Hydrocarbon oils - Fractionation - Patents - Germany 3. Hydrocarbon gases - Fractionation - Patents - Germany 4. Patents - Germany 0 Z12126 5. Patents - Germany O Z12289

6. Patents - Germany O Z12272 7. Micro BIOS FD 2551/48, Frames 1-18. Includes English abstract. Abstract available as PB 100053s. 2p. Mi $1.25, Ph $1.25.

PATENT MATTERS RELATING TO WAXES AND BENZINES. Ruhrchemie A. G., Oberhausen-Holten, Ger. 1939-1944. 47f Mi $2.50, Enl Pr $7.50. PB 99931
1. Waxes - Patents - Germany 2. Micro BIOS FD 51/48, Frames 1-47. Abstract available as PB 99931s. 1p. Mi $1.25, Ph $1.25.

PROCESS FOR PRODUCING VERY FAST VAT DYES YIELDING VARIOUS SHADES OF YELLOW. DRP 716812. I.G. FARBENINDUSTRIE A. G., FRANKFURT, GER. TRANSLATED BY F. G. WOLFF. 1949. 6p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $9.25. PB 99894
1. Dyes, Vat - Patents - Germany 2. GP 716812 translation. Report no. 3528.

VARIATION OF PROCESS FOR OBTAINING VALUABLE VAT DYES. I. G. FARBENINDUSTRIE A. G., FRANKFURT, GER. DRP 718304. TRANSLATED BY R. LEVY. 1949. 7p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $11.50. PB 99895
1. Dyes, Vat - Patents - Germany 2. GP 718304 translation. Report no. 3530.

VAT DYES OF EXCELLENT LIGHT AND ALKALI FASTNESS. I. G. FARBENINDUSTRIE A. G., FRANKFURT, GER. DRP 715820. TRANSLATED BY G. S. SCHACHNE. 1949. 10p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $20.00. PB 99896
1. Dyes, Vat - Patents - Germany 2. GP 715820, translation. Report no. 3527.

Electrical Machinery, Equipment and Supplies

ANTENNE MIT FORTSCHREITENDEN WELLEN, INSBESONDERE RHEMBUS-ODER OKTAEDERANTENNE (IMPROVED RHOMBIC OR OCTAHEDRAL ANTENNA USING SYMMETRICAL FEEDBACK), by Rembert Martinson. Forschungsanstalt der Deutschen Reichspost. Patentabteilung, Berlin. Feb 1942. 40p diagrs (Text in German) Mi $2.25, Ph $5.00. PB 99776
An antenna system is described which is characterized by the fact that, the energy appearing at the end of a symmetrical or a symmetrical ground fed antenna is inductively fed back to the starting feed point; the efficiency of the system is thus increased. Summary in French. German patent M 155,388 VIIIa/2sa4.

IMPROVED INSULATING PROPERTIES OF SEPARATORS EMPLOYED IN PRIMARY CELLS OF THE ALKALINE TYPE, by Arthur F. Daniel. n.d. 3p drawings Mi $1.25, Ph $1.25. PB 97268
1. Cells, Primary - Alkali - Inventions.

Lumber and Wood Products

HOLZBEARBEITUNG. KLASSE 11, 15, 34, 38, 68, 70. (ABSTRACTS OF GERMAN PATENTS APPLICATIONS. WOOD-WORKING. CLASSES 11, 15, 34, 38, 68, 70).

AUSZÜGE DEUTSCHER PATENT-ANMELDUNGEN. (VOL. 12 OF THE SERIES). n.d. 656p (Text in German) Mimeo: $5.00. PB 8502
1. Woodworking industry - Equipment - Patents - Germany 2. Furniture - Patents - Germany 3. Locks and keys - Patents - Germany 4. Printing presses - Patents Germany 5. Bookbinding - Patents - Germany 6. Writing - Materials and instruments - Patents - Germany 7. Instruments, Drawing - Patents - Germany.

Machinery

METHOD FOR MANUFACTURING FIRM, PARTICULARLY HIGH-VACUUM TYPE JOINTS BETWEEN OBJECTS OF CERAMIC MATERIAL AND GLASS. Porzellanfabrik Kahla, Kahla, Ger. Jun 1948. 3p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $2.00. PB 9361
1. Soldering - Methods - Patents - Germany 2. GP 715026.

TURBINE À COMBUSTION INTERNE. (INTERNAL COMBUSTION TURBINE, I. E. CONSTANT VOLUME GAS TURBINE), by Armand Ferrier and Pierre-Max-Raoul Salles. 1908. 6p drawing Mi $1.25, Ph $1.25. PB 9986
1. Turbines, Gas - Patents - France 2. Patents - France - 383,966, Mar 1908 3. STS 84.
French patent no. 383,966 applied for 26 Sep 1907, granted 23 Jan 1908, abstract published 25 Mar 1908. Translated by Francis X. Prier; edited by F. A. Raven, Ph. D.

Metals

EXPERIMENTS ON GERMAN PATENT B 182685/48C (COATING LIGHT METALS WITH HARD-METAL CARBIDES). Studiengesellschaft Hartmetall, Berlin. 1934. 3f (Text in German) Mi $1.25, Enl Pr $2.50. PB 9682
1. Carbides, Cemented - Germany 2. Patents - Germany - B182685/48C 3. Light metals - Coatings - Germany 4. Micro BIOS FD 3899/47, Frames 1-2.
Abstract available as PB 96820s. 1p. Mi $1.25, Ph $1.25.

FURTHER INVESTIGATION OF METHODS OF GASEOUS METAL TREATMENT, BY P. H. LAWRENCE AND R. L. SAMUEL. SUMMARIES OF UNPUBLISHED PATENT Aug 1946. 22p Mi $2.00, Ph $3.75. BIOS FR 1534, Item 21. PB 9701
See also BIOS FR 839 (PB 52873).

Miscellaneous

INDEX OF PATENT APPLICATIONS MADE BY I. G. FARBENINDUSTRIE, NOV 194 AUG 1944. I. G. Farbenindustrie A. G., Schkopau, Ger. Jan 1942. 320p Mi $9.00 Ph $40.00. PB 9847

METHOD FOR MANUFACTURING FIRM, PARTICULARLY HIGH-VACUUM TYPE JOINTS BETWEEN OBJECTS OF CERAMIC MATERIALS AND GASES. Porzellanfabrik Kahla, Kahla, Ger. Jun 1948. 3p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $2.00. PB 9361
1. Soldering - Methods - Patents - Germany 2. GP 715026.

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APPLICATION OF SUPERSONIC REFLECTOSCOPE TO THE TESTING OF AIRCRAFT PARTS, by J. C. McGee and C. F. McMahon. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. Jun 1948. 21p photos, drawings, table AAF T-2 TR 5743 PB 97686

ATMOSPHERIC ELECTRICITY DURING DISTURBED WEATHER, by George Simpson. Gt. Brit. Air Ministry. Meteorological Office. 1949. 71p diagrs, graphs, tables Geophysical memoirs no. 84, (vol. 10, no. 4). PB 98875

BERICHT ÜBER DIE IM AUFTRAG DER MARINE LEITUNG IM GÖTTINGEN KAISER-WILHELM-INSTITUT FÜR STRÖMUNGSFORSCHUNG DURCHGEFÜHRTEN PROFILMESSUNGEN BEI KAVITATION (REPORT ON PROFILE TESTS UNDER CAVITATION CONDITIONS), by O. Walchner. Kaiser-Wilhelm-Institut für Strömungsforschung, Göttingen, Ger. Nov 1934. 66p drawings, tables (part fold) STS 64. PB 99080

CENTRAL VALLEY PROJECT STUDIES. PAYMENTS BY BENEFICIARIES. PROBLEMS 10 TO 13, by Harlan H. Barrows and Everett A. Pesonen. U. S. Bureau of Reclamation. 1947. 221p photos, fold maps, graphs, tables PB 98641

COMPARATIVE SUITABILITY TEST OF SNAP TYPE FASTENERS AND STANDARD BUTTON CLOSURE FOR DRAWERS, SHORTS, COTTON, by James E. Colburn. U. S. Air Proving Ground, Eglin Air Force Base, Fla. Aug 1949. 14p photos APGC Proj 34925-5. PB 99051

THE DOUBLE SUPERPHOSPHATE AND WET PHOSPHERIC ACID PROCESSES: THEIR PRESENT STATE AND FUTURE POSSIBILITIES, by Sven Nerdengren. 1949. 27p photos, drawings, graphs. Royal Swedish Academy of Engineering Sciences. Handlingar nr. 203. PB 99083

EFFECTS OF COLD ON THE BENDS; CLOTHING FOR COLD CLIMATES; EFFECTS OF IMPERMEABLE CLOTHING; EFFECTS OF VARYING PROTEIN INTAKE, BY ARLIE V. BOCK. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT COMMITTEE ON MEDICAL RESEARCH. MONTHLY PROGRESS REPORT NO. 12. May 1943. 1p Contract no. OEMcmr-54. PB 99029

FOOD POISONING; STEPS TO BE TAKEN IN ENGLAND AND WALES BY MEDICAL OFFICERS OF HEALTH IN THE INVESTIGATION OF FOOD POISONING. Gt. Brit. Ministry of Health. 1949. 10p. PB 99010

FUNCTIONAL TEST OF ICE SAW-SNOW KNIVES, by Norman Bright. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Sep 1949. 8p photos AAF TSEAA MR 670-22M. PB 99091

GAS ANALYSIS BY THE ABSORPTION METHOD, by Robert W. Roundy. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Aug 1949. 11p table AAF TSEAA MR 660-131. PB 98991

GLASS FABRIC BASE PLASTIC HONEYCOMB CORE SANDWICH CONSTRUCTION, by W. D. Eisenhauer. U. S. Air Material Command. Engineering Division. Materials Laboratory, Wright Field, Dayton, Ohio. Dec 1946. 7p photo, tables. AAF TSEAM MR M5257. PB 99058

HARDWOOD LUMBER INSPECTION, by Arthur W. Price and Raymond J. Hoyle. New York State College of Forestry, Syracuse University, Syracuse, N. Y. Revised Feb 1949. 49p tables. Technical publication no. 70. PB 99075

HIGH PRESSURE OXYGEN CYLINDER VALVE, by Courtney Metzger. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field Dayton, Ohio. Jun 1949. 6p photos AAF TSEAA MR 660-128-A. PB 98873

HIGH PRESSURE OXYGEN LINE VALVE, by Courtney A. Metzger. U. S. Air Materiel Command. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Sep 1949. 5p photos AAF TSEAA MR 660-128-B. PB 99100

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HOSE ASSEMBLIES, LOW PRESSURE (FOR BREATHING OXYGEN), by B. McWhirter. U. S. Air Materiel Command. Engineering Division. Materials Laboratory, Wright Field, Dayton, Ohio. Sep 1949. 3p table AAF TSEAM MR 660-109-T. PB 99114

HOSE ASSEMBLIES, LOW PRESSURE (FOR BREATHING OXYGEN), by B. McWhirter. U. S. Air Materiel Command, Engineering Division, Materials Laboratory, Wright Field, Dayton, Ohio. Sep 1949. 3p table AAF TSEAM MR 660-109-S PB 99113

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LIME-SODA SINTER PROCESS FOR ALUMINA FROM HIGH-SILICA BAUXITES: LABORATORY AND PILOT-PLANT TESTS, by John E. Conley and Milford L. Skow. U. S. Bureau of Mines. Jun 1949. 78p diagrs, maps, tables BM RI 4462 PB 99064

LOW PRESSURE OXYGEN HOSE ASSEMBLIES, V. L. GRAF COMPANY, PART NO. C-9005-4, by Fred R. Heckerman. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Oct 1949. 3p AAF TSEAA MR 660-109-W PB 99115

MATERIAL REQUIRED TO CARRY OUT RADIOGRAPHY WITH C_O 60 OR RADIUM, by A. Morrison. National Research Council of Canada. Division of Physics. Industrial Radiation Laboratory. Aug 1949. 10p NRCC 2008. PB 99178

N.A.A.S. QUARTERLY REVIEW, THE JOURNAL OF THE NATIONAL AGRICULTURAL ADVISORY SERVICE, V. 1, NO. 4, SUMMER 1949. Gt. Brit. National Agricultural Advisory Service. 1949. 49p PB 98967

NORMAL RESPONSES TO EXERCISE, WHICH MIGHT BE CONFUSED WITH PATHOLOGICAL CHANGES, by R. E. Johnson. Harvard University. Fatigue Laboratory. Jan 27, 1943. 1943. 5p tables. Report no. 15 under OSRD Contract no. OEMcmr-54. PB 99037

NOTCH-SENSITIVITY OF SHIP PLATE-CORRELATION OF LABORATORY-SCALE TESTS WITH LARGE-SCALE PLATE TESTS, by Noah A. Kahn and Emil A. Imbembo. 1949. 37p photos, drawings, graphs, tables. Reprint from Symposium on deformation of metals as related to forming and service. Special technical pub. no. 87. PB 99001

OM SAMMANSATTA BALKAR OCH PELARE MED SÄRSKILD HÄNSYN TILL SPIKADE TRÄKONSTRUKTIONER. (ON COMPOSITE BEAMS AND COLUMNS WITH PARTICULAR REGARD TO NAILED TIMBER STRUCTURES), by Hjalmar Granholm. Chalmers University of Technology, Gothenburg, Sweden. 1949. 216p photos, drawings, graphs (Text in Swedish). Transactions no. 88. PB 98970

ON LIQUID WATER CONTENT IN FOGS AND CLOUDS, by Alf Nyberg. Sveriges Meteorologiska och Hydrologiska Institut, Stockholm. 1949. 13p photos, drawings, tables. Meddelanden, Series B, no. 6. PB 98963

OPERATIONAL SUITABILITY TEST OF J-2 SLAVED GYRO MAGNETIC COMPASS, by Dunstan Abel. U. S. Air Proving Ground. Eglin Air Force Base, Fla. Aug 1949. 18p photos APGC Project 4481-5. PB 99016

OPERATIONAL SUITABILITY TEST OF THE SAFE FLIGHT STALL WARNING INDICATOR, by Herbert A. Lyon. U. S. Air Proving Ground, Eglin Air Force Base, Fla. Jul 1949. 21p photos, table APGC Project 4492-5. PB 99013

OPERATIONAL SUITABILITY TEST OF TOOL, FERRULE HAND TIGHTENER, by Frank E. Brandeberry, Jr. U. S. Air Proving Ground, Eglin Air Force Base, Fla. Aug 1949. 18p photos APGC Proj 34919-5. PB 99079

PAVEMENT PERFORMANCE; PAPERS PRESENTED AT THE 28TH ANNUAL MEETING 1948. ANALYSIS OF SPRING BREAK-UP DATA IN VIRGINIA, BY T. E. SHELBURNE AND A. W. MANER. PAVEMENTS AND INFLUENCES AFFECTING OR DETERMINING THEIR PERFORMANCE, by A. T. Bleck. Highway Research Board. Sep 1949. 75p photos, graphs, tables Bulletin no. 20. PB 98599

PERCENTAGE FREQUENCIES OF VARIOUS VISIBILITY RANGES AT CERTAIN PLACES IN THE BRITISH ISLES BETWEEN THE YEARS 1927 AND 1936. Gt. Brit. Air Ministry. Meteorological Office. 1949. 54p tables AM MO 521 PB 99550

PRECIPITATION STATIC. U. S. Office of Naval Operations. Aviation Training Division. Apr 1945. 36p photos, diagrs, maps, graph NAVAER 00-80U-12 PB 99228

PREDICTION DIAGRAMS FOR RADIATION FOG, by W. C. Swinbank. Gt. Brit. Air Ministry. Meteorological Office. 1949. 8p graphs. Professional notes no. 100 (v. 6, no. 20). PB 99446

PRELIMINARY INVESTIGATION OF TRANSISTORS FOR COMPUTER CIRCUITS, by William P. Horton and Robert M. Kalb. Engineering Research Associates, Inc., St. Paul, Minn. Oct 1949. 32p photos, diagrs, graphs. Contract NObsr 42001. PB 99628

PRESERVATIVES IN ARMY DUBBINGS, by Hoke S. Greene and Robert M. Lollar. Cincinnati. University. Jan 1944. 21p tables. Contract OEMsr-718. OSRD 3120. PB 98788

PROJECT NO. 90, PROGRESS REPORT NO. 2, CONTRACT W-36-039-SC-32101 BETWEEN EVANS SIGNAL LABORATORY AND NEW YORK UNIVERSITY, by Dr. Bernard Serin. New York University. College of Engineering. Engineering Research Division. Nov 1946. 18p. SIG Contract W-36-039-sc-32101. PB 99236

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PROPERTIES OF HEAVY COMMERCIAL FORGINGS OF A LOW-CARBON IRON-MANGANESE-NICKEL ALLOY, by Stewart Toleman and W. J. Harris, Jr. U. S. Naval Research Laboratory, Bellevue, D. C. Sep 1949. 12p tables, graphs. NRL M-3456. PB 99691

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